

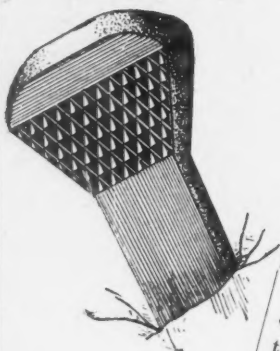
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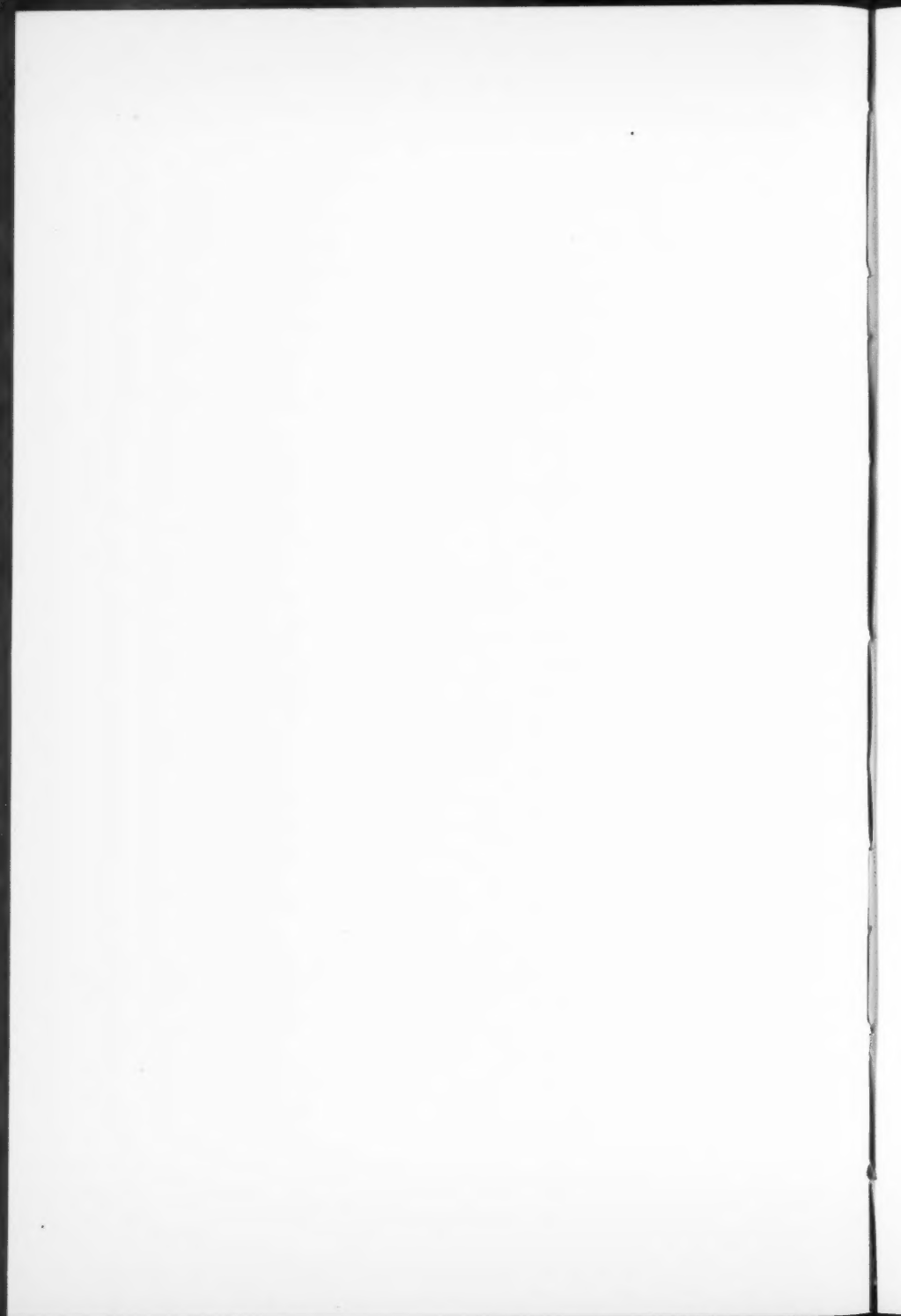
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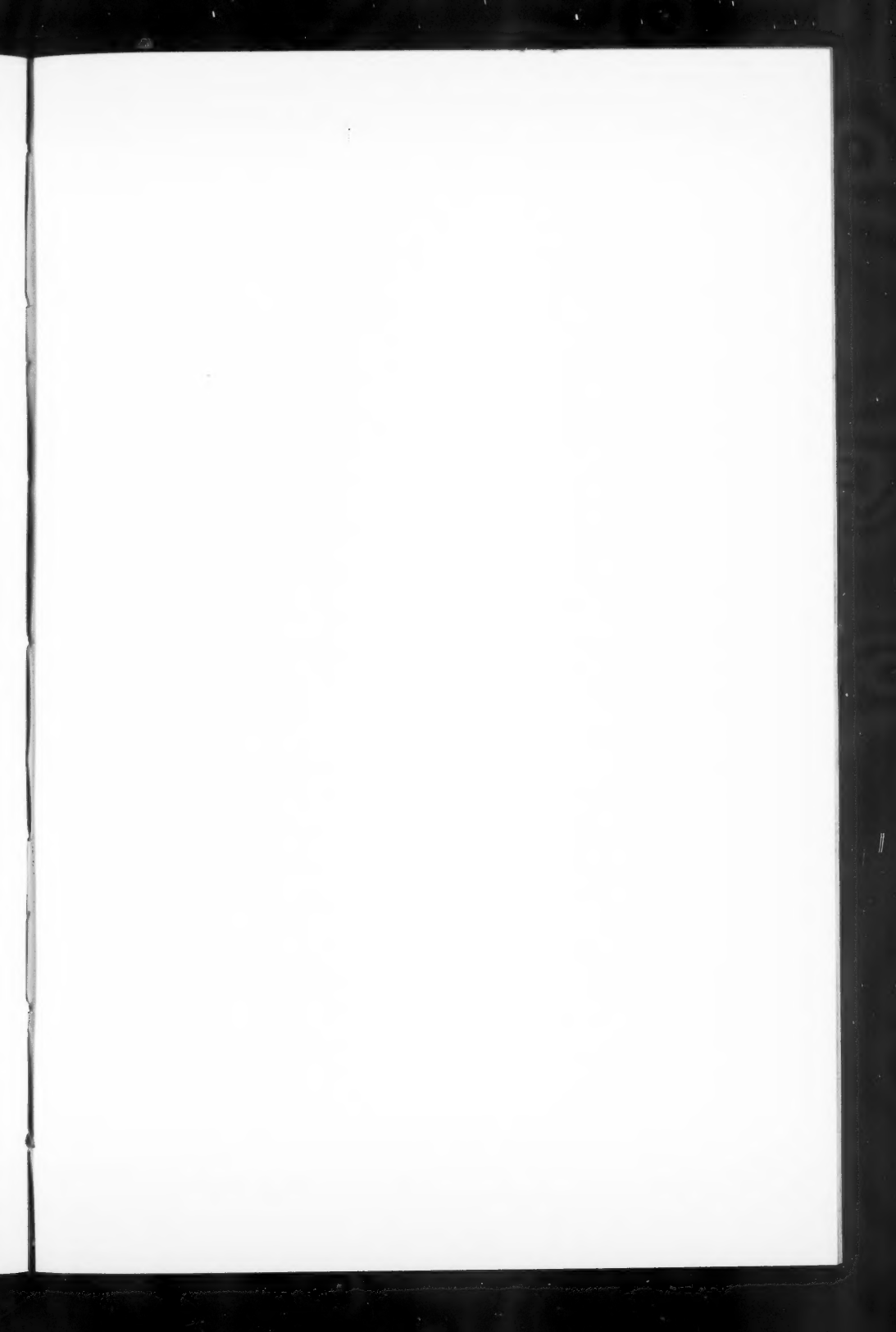
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### THE GERONIMO CAMPAIGN OF 1885-6.

BY CAPTAIN CHARLES P. ELLIOTT, U. S. ARMY, RETIRED.

*Campaign of Captain Emmet Crawford, Late Third U. S. Cavalry, Against Chiricahua Apaches in 1885-6.*

THE Chiricahua Apache Indian Tribe is one of the families of Apaches who have but little in common with the other Arizona Apaches and differ even in language.

The habitat of the tribe was Arizona and Northern Mexico, where they had reservations on both sides of the line.

They were for years a scourge to both Americans and Mexicans and it was not until the close of the campaign against them in 1886 that the troubles with them were terminated. The beginning of that campaign I am about to describe.

Since the death of Victoria, the Warm Springs and Chiricahua Indians have combined and blended and are both known as Chiricahuas.

In 1883 General George Crook with a command of regulars and Indian scouts entered the Sierra Madre Mountains in Mexico, followed the Chiricahuas to their stronghold in the heart of the mountains and induced the entire tribe to return to the White Mountain Indian Reservation in Arizona, where they were held as prisoners of war under the military command of Capt. Emmet

Crawford, 3rd Cavalry, in whom General Crook reposed great trust and confidence.

They were held at the San Carlos Agency for a time, then, at their own request, were allowed to remove to Turkey Creek, ten miles from Fort Apache, and were placed in the immediate charge of Lieut. Britton Davis, 3rd Cavalry. A number of bucks and their families started farms on Turkey Creek and White River, worked hard, and were to all appearances perfectly contented.

The first trouble occurred at Turkey Creek in 1884 with one of their war chiefs, "Ka-e-te-na." His prompt arrest, trial by Capt. Crawford, and sentence to three years' imprisonment at Alcatraz Island, in San Francisco Harbor, put a stop to all further trouble.

The fall and winter of 1884 passed in peace and quiet as did also the early spring of 1885. In April, 1885, the 3rd Cavalry, Capt. Crawford's regiment, was ordered from Arizona to Texas. Capt. Crawford applied to be relieved from duty over the Indians in order to go with his regiment. His request was granted in an order paying high tribute to his valuable services. Lieut. Davis, 3rd Cavalry, was retained in charge of the Chiricahua Indians and came to San Carlos in the latter part of April to draw annuity supplies for them. He reported that all were quiet and seemed thoroughly satisfied with their condition. On his return to Fort Apache he was accompanied by Capt. Pierce, 1st Infantry, the new commanding officer of the reservation, and Agent Ford, who represented the Interior Department. On their return to San Carlos they reported the Chiricahuas to be in a thoroughly satisfactory state.

Immediately thereafter a telegram came to Capt. Pierce stating that several of the prominent leaders had gotten drunk, camped together, evidently intending to defy authority and avoid punishment, and that an outbreak was feared. In a few moments after the receipt of the message the telegraph wire to Fort Apache was cut by the Chiricahuas, and of course it did not require an experienced cook to tell that the "fat was in the fire."

An extract from General Crook's report explains the situation very clearly:

## EXTRACT FROM REPORT OF GENERAL CROOK.

"My first information of impending trouble was a telegram received on the afternoon of May 17th, 1885, and before a reply could be sent the wires between Fort Apache and San Carlos were cut. The next afternoon I was informed that Geronimo, Nana, Mangus, Natches and Chihuahua, with a considerable party, had left their camp on the preceding evening. Within a few days the exact number of renegades was fixed at thirty-four men, eight well grown boys, and ninety-two women and children. I learned that on May 15th, Lieut. Britton Davis, 3rd Cavalry, sent a telegraphic dispatch (copy attached, marked "A") which I did not see for months afterwards. Had the telegram reached me I feel morally certain that the trouble would have been settled without an outbreak. Troubles of minor importance were constantly occurring on the reservation, which were quieted down by the officers in charge by reporting them to me and receiving my instructions."

## TELEGRAM FROM LIEUT. DAVIS, MAY 15TH, 1885.

"There was an extensive tismín drunk here last night and this morning; the following chiefs came up and said they with their bands were all concerned in it: Geronimo, Chihuahua, Mangus, Natches, Fele and Loco. The whole business is a put-up job to save those who were drunk. In regard to the others I request instructions. The guard house here is not large enough to hold them all, and the arrest of so many prominent men will probably cause trouble. Have told the Indians that I would lay the matter before the General, requesting, at the same time, that their captives in Mexico be withheld. I think they are endeavoring to screen Natches and Chihuahua.

"(Sgd.) DAVIS, Lieut.

"The above is the telegram which has caused so much comment. When I reached San Carlos, the commanding officer told me that he had received the telegram, but did not forward it.

"(Sgd.) DAVIS, Lieut."

Embodied in the reports of General Crook are the interesting reports of Capt. Allen Smith, 4th Cavalry, commanding a squadron sent to pursue the renegades and head them off if pos-

sible before they left the reservation, also Lieut. Davis' report of his pursuit with Indian scouts.

The Indians retreated, however, without loss to themselves, but leaving a trail of blood behind them, until they finally escaped into Old Mexico.

REPORT OF GENERAL CROOK.

"Within an hour after the renegades left their camp on Turkey Creek, two troops of Cavalry (the 4th) and a party of White Mountain and Chiricahua Scouts, under Lieuts. Gatewood and Davis, left Fort Apache in pursuit, but such was the rapidity of their flight that it was impossible to overtake them. It subsequently appeared that they traveled nearly one hundred and twenty miles before stopping for rest or food. Capt. Smith's report is attached (marked "B").

As soon as the departure of the Indians was known, troops were immediately put in motion to endeavor to overtake or intercept them. Capt. Pierce, with a party of scouts from San Carlos, moved towards Ash Park. The Commanding Officer of Fort Thomas, without waiting for orders, sent two troops of Cavalry towards Clifton. The Commanding Officer of Fort Grant was ordered to send all his available force of five troops of Cavalry towards the Gila, with orders to cut their trail if possible, and to pursue vigorously regardless of Departmental or National lines. The Commanding Officer of Fort Bowie was directed to ambush his Cavalry at proper points in the Stein's Peak Range, which had been a favorite trail in former years. The Commanding Officer of Fort Huachuca was instructed to send three troops to Guadalupe Cañon to scout the whole country in that vicinity. Information was sent to the Commanding Officer, District of New Mexico, of the departure of the Indians and the movements of the troops, and finally, every effort was made to warn citizens at all points within reach of danger."

A few days before the outbreak of the Chiricahuas I was ordered, as Provost Officer of the reservation, to take two packers and what riding and pack mules were needed, and make an inspection of the Indian camps on the Aravaipa Cañon and San Pedro River. En route to the Aravaipa we stopped to examine a fine spring, reported by the Indians as flowing through

a rough, rocky cañon a few miles north of the Aravaipa. I found the spring as reported to be of clear, pure and cool water, a treasure indeed in Arizona.

Just after leaving camp in the morning for the Aravaipa, my saddle mule was struck by a rattlesnake and, having no remedies, after lacerating the wound I made one of the packers lead the mule back to the spring and tie her in the mud near it with a weak rope. That the remedy worked was proven by the mule being found, twelve months later, among the Indians on the San Pedro. The delay caused by the accident caused me to meet the mail carrier at the foot of the trail into the Aravaipa, and from him I learned that the Indians had broken out and started southeast from Fort Apache. I concluded that they would endeavor to elude the troops and escape into Old Mexico, in eastern Arizona or western New Mexico, and that my best chance to join an expedition against them was to strike diagonally across through Fort Bowie, Arizona, get the latest intelligence, and continue to the east until one of the pursuing columns was met. At the mouth of the Aravaipa a courier from Lieut. Walsh at San Carlos overtook me, suggesting that my return to San Carlos was advisable, but as he was junior to me I could not resist the temptation to continue on my way and follow out my original plan.

Our route took us up the San Pedro, as long as possible on the wagon road, then across country towards Fort Bowie, laying a course as nearly straight as possible in such a rough country, using the stars at night, as a guide.

The first news was obtained at Wilcox that the Indians were in the mountains near the Gila, but trying to work south. At Fort Bowie I secured all the supplies that my mules could carry and started southeast, going by the Double Adobes in Los Animas Mountains, across the line and to the Janos River in Old Mexico. There I found that I was south of the Indians and started north towards Deming, N. M.

At the noon camp on the Janos River an incident occurred rather characteristic of the country. We had killed, on an average, more than one rattlesnake a day, traveling across the country, but had never encountered one in camp. The cook had just spread our meal on a canvas manta, near a water hole, and we

were setting to in good earnest, when, with an exclamation in Spanish, the Mexican packer jumped over the improvised table. I looked around and saw about six inches of the head of a rattlesnake appear between where he had been and myself; as quick as thought the American packer, with one stroke of the ax, cut off the snake's head. We had spread our table directly over the hole of a five-foot rattlesnake, but in breaking down the fennels to make a level place had not been able to see it. Sleeping on the same ground was not pleasant, but excessive fatigue is a good sedative.

While we went north from the Janos the hostiles went south within a short distance, just when or how far apart we passed in the night I am unable to say.

I found that a battalion of the 10th Cavalry, under Major Biddle, which had returned from pursuit of the band gone south, was camped near the Florida Mountains. Gen. Crook had gone to Fort Bayard, N. M. I reported to him by telegram and awaited instructions.

Capt. Pierce, who had succeeded Capt. Crawford in command at San Carlos, was expected in from the east with his Indian scouts, the command to which I belonged, by rail from near the Ojo Caliente. Capt. Crawford had been ordered back from Texas to organize and command an expedition composed of Indian (100) scouts and one troop of the 6th Cavalry, and pack train, to pursue the Indians into Old Mexico.

#### REPORT OF GENERAL CROOK.

"Capt. Crawford, 3d Cavalry, who had reported to me, was ordered with the battalion of scouts which had been operating in the country about the Warm Spring Reservation to Separ by rail, and thence to move with a troop of cavalry to the south end of the Animas Valley, with the hope that the Indians might cross into Mexico through the Guadalupe Mountains. The result proved that the main body of the hostiles crossed the line to the west of the Mule Mountains, though a small party surprised a camp of the 4th Cavalry in Guadalupe Cañon, guarded by a party of seven enlisted men, killing four of them, and another small party crossed the line near Lake Polomas. Lieut. Davis, who, with sixty White Mountain and Chiricahua scouts, had been following the trail of the Indians as rapidly as possible, was

ordered to report to Capt. Crawford, and on June 11th the combined force consisting of ninety-two scouts and Troop 'A,' 6th Cavalry, followed the hostiles into the Sierra Madre."

My duty while waiting at Deming was to collect and forward to Gen. Crook all information possible about the movements of Indians, especially that gathered from the employes of the two railroads running into Deming. The shameless lies told by some of the employes, who would go into the most minute details about seeing a band of Indians breaking camp and moving south, caused me to ride many useless miles in the hot sun and to learn by experience that residence in New Mexico and Arizona, if too prolonged, produces the champion breed of liars.

Lack of veracity on the part of the civilians in reporting movements of Indians was frequently the cause of unnecessary loss of life among themselves, by causing the troops to go on a fruitless search, in the wrong direction, for Indians raiding and killing elsewhere. In a sparsely settled country, with few railroads, few roads, high and very rough mountains, with water long distances apart, information was hard to obtain, and when wrongly given many weary miles were necessary to discover the error.

The campaign now opened in real earnest; all the troops in both territories were on the move. Our command was loaded on cars and taken to Separ on the Southern Pacific railroad. From that point the course lay south towards the Animas Valley, the scouts covering the country on both sides for signs of the trail of the hostiles. News reached Capt. Crawford that the hostiles were to the west of us and that the troops from Fort Huachuca had left their camp in Guadalupe Cañon in pursuit of them, the Indians working to the south. He took his command over to Skeleton Cañon, but seeing no signs of the hostiles went to Lang's Ranch, N. M., and from there crossed the line and mountains into Old Mexico. The band of hostiles, soon after crossing the Guadalupe Cañon, evidently noticed the white-topped army wagons in the camp at Guadalupe Cañon, and rightly concluding that they belonged to the command that they had just eluded and left behind, doubled back, crawled up on the camp down the backbone of a ridge, terminating in a steep bluff

just opposite it, watched the soldiers until the sentinel on duty was called to his dinner, and, contrary to specific orders, left his post to get it; then the Indians got within a few feet of the unsuspecting men, and opened fire on them. The soldier acting as cook and two others were, I think, killed instantly. The sergeant in charge was shot, but Private Snitzer of "C" Troop, 4th Cavalry, took him on his back and climbed with him out of the cañon on the north side. The sergeant was shot a second and third time while on Snitzer's back and killed. The Indians took what they wanted and burned the rest. On the return of the troops the men that had been killed were buried, their graves remaining as a warning to the soldiers in that camp during the rest of the campaign. Private Snitzer was duly rewarded for his gallant conduct.

The first camp made by Capt. Crawford in Old Mexico was at Sierra Media (Middle Mountain), the scene of a severe engagement between the 6th Cavalry and Indian scouts under Major Tucker and the Chiricahuas during a former outbreak. Some of our scouts had then been hostiles, and during the night of our camp on their old battleground celebrated, by the most fiendish singing, their former successful escape from a rather desperate position. From Sierra Media, no signs of hostiles having been seen, the command went northwest towards the mountains south of Guadalupe Cañon. The scouts still failed to develop signs, so we turned south towards the Sierra Madre, camping at Dos Carretos Creek. Capt. Crawford's intention now was to get south of the Indians, keep a sharp lookout for signs of them and, if possible, surprise and capture them, as it was nearly impossible to get a fight out of them otherwise. In pursuance of this design the command crossed into Sonora, notifying the presidents of all towns of the outbreak and asking that any movements of the hostiles be communicated to it at once. The country was very thoroughly covered and it was evident that the hostiles were in the mountains to the north of our position. An incident occurred about this time that resulted in the killing of one of our scouts and the wounding of another by an American living in Mexico. The scouts were, as usual, well ahead of the command and spread out, looking for signs. The American, who had heard of the Indian incursion into Mex-

ico, was driving his cattle to a place of safety, when suddenly he saw coming towards him three Indians. He took up a favorable position, bided his time, killed one, wounded another and put the third to flight. He did not know that we were near with Indian scouts and thought he had run into the Chiricahuas. The heat at this time was frightful.

The following is Capt. Crawford's report:

CAMP ON BATEPITO RIVER,  
Six miles above Oputo, Mexico.

June 25th, 1885.

*General Crook, Whipple Barracks, A. T.*

Camped in Texas Mountains, vicinity of Guasaoas, on the 19th instant, and was informed the following day that Indians had been seen near Oputo the night of the 19th. Acting on this information I ascended the river to this point, and on the morning of the 22d discovered the fresh trail of about eight or ten Indians leading into the Bavispe Mountains northeast of here. That afternoon Chatto left camp with a picked body of scouts to overtake and capture the men whose trail we had seen, or, failing in that, to locate the camp and hold the hostiles, if possible, until the rest of the command could overtake them. Some of the scouts returned night before last and the rest yesterday morning with the following report:

After leaving camp they marched until about dark, when it began to rain heavily and washed out the trail, when they camped. Starting again the next morning, they entered the range of mountains toward which the trail had been leading, and about 9 o'clock came in sight of the rancheria. The camp was in such a position that Chatto thought it impracticable to surround it without being seen by the hostiles, in which event the chances of capturing any of them would have been very poor. The best position practicable was obtained and Chatto then opened the fight. As soon as the firing commenced the hostiles fled and endeavored to escape, with their women and children, through several deep cañons which joined near the camp. The scouts followed as rapidly as the nature of the ground would permit, and for several miles a running fight was kept

up, but the cañons were so very rough that the pursuit was slow, and the bucks, eight in number, with four boys and three women, escaped to the mountains. Fifteen women and children were captured, and one of the women was sent by Chatto to see if she could not induce the surrender of the others of the party. This woman has not yet returned. There was also captured all of the property belonging to the party, five horses belonging to the 4th Cavalry, three saddles, two revolvers, cartridge belts, ammunition, etc., belonging to soldiers killed in Guadalupe Cañon, one white mule, branded "U. S.," and other property of less value. One Indian was killed and several others wounded in the fight. Two of the captives, one a squaw and the other a child, were wounded; one scout, a White Mountain, known as Big Dave, was shot through the elbow, his arm being broken. The camp was that of Chihuahua, whose entire family is among the captives. Natches is supposed to have left him several days before the fight, and is now thought to be with Mangus and Geronimo on the eastern slope of the Sierra Madre. Expect to leave here tomorrow morning, continuing to follow Natches' trail into the Sierra Madre. Country through which trail has led so far is extremely rough and with scarcely any water, so that time will be necessary to accomplish satisfactory results.

The Mexican citizens and officials of the different towns have shown us every consideration and attention, expressing themselves as more than pleased to have us here protecting them. The Mexican troops are said to be south fighting the Yaquis.

(Signed) EMMET CRAWFORD,  
Capt. 3d Cavalry, Commanding.

The command had been subject to every possible hardship up to this time, excessive heat, very little water, poor rations, bacon made rancid by unusual heat, and at night were pestered not only by mosquitoes, but by ants, large and small, with an occasional centipede. I killed one of the latter at Dos Carretos Creek that measured eight inches. At the camp on the Bavispe River, while waiting for the return of the scouts with their captives, the insects had been particularly annoying. Due to the rain mentioned in Capt. Crawford's report, the river has risen a foot or more and then receded. I concluded to spread my

rubber poncho on the wet ground near the river, put my head in a pillow case that I was fortunate enough to have, and try to get a little sleep. The air was rather vibrant with suppressed excitement; the scouts in camp knew the hostiles were not far off and seemed to think they would try to recover their squaws or run off some of our stock. The mule pack train was herded across the river from where I went to sleep. I was awakened out of a sound sleep by loud cries all around me and a great splashing in the river. It flashed across my mind that I was just in the way if the mules stampeded towards camp. Of course, the pillow case stuck, but I could not allow a small thing like that to stop me, and, being young and active, I went blindfolded for the high ground. When in a place of safety from mules I got the pillow case off and found Lieut. Davis, Al Seiber and all hands armed and ready to receive an enemy. What I had heard coming through the water were our scouts, some of whom had camped across the stream, who had imagined that the Chiricahuas were upon us and had stampeded to our side of the river to join forces. All of the excitement was caused by a lone burro crossing the river just below where we were.

The following morning the captives were brought in. Capt. Crawford directed me to go to Oputo to get a guide and some grain, if possible, as he wished me to go by forced marches to Fort Bowie with his report to Gen. Crook. I succeeded in getting a Mexican smuggler for a liberal consideration who undertook to take me by the shortest possible route. Capt. Crawford allowed me my choice of all animals in the command, as he wanted the dispatch to get to Fort Bowie in three days.

With my smuggler guide, one pack mule, loaded with a half sack of corn, a loaf of Dutch oven bread, a piece of bacon and a coffee pot, we left camp at 8 a. m. June 25th.

The first part of the route was entirely unknown to me, in, fact, I had never been into Bowie from that direction, but near the post is a prominent landmark visible for miles down the valley towards Mexico, and I knew if my guide would get me out of the mountains that I could be independent of him. About two hours from camp a deer jumped up in front of me, ran a short distance up a side cañon and stopped in easy range. I shot it from my mule, cut off a hind quarter and hung the carcass up

on a tree for the pack train that I knew would follow me. Had we not been engrossed with the deer we would undoubtedly have noticed that the hostile bucks had crossed the cañon just before we got there and the officer in charge of the train said that finding the signs all mixed up together he expected at any moment to find our mutilated remains. However, I was spared to make one of the hardest and most trying rides of my life.

By riding sixteen hours a day in two periods of eight hours each, as nearly as possible, stopping to water the mules and make coffee, where possible, the ground was covered quite rapidly. Making camp consisted of taking the saddles and blankets, wet with sweat and rain, off the riding mules and the aparejo with its light load from the pack mule. With the ground or a wet blanket to lie on and a saddle to rest your head on, your housekeeping arrangements were soon completed.

I had the satisfaction of delivering my dispatch to Gen. Crook at Fort Bowie at 8 a. m. on June 28th, on time. I had to finish the last stage on foot, leading my mule, worn out and unable to bear my weight. The Mexican and the pack mule did not turn up until the afternoon. The distance covered was between 190 and 200 miles.

Gen. Crook was glad to learn of the whereabouts of the hostiles and ordered me on the second day to go with a fresh mount and a packer to Lang's Ranch to await the arrival of fresh supplies and a fresh cavalry troop for Capt. Crawford, Troop "A," 8th Cavalry, having been worn out by the work with the scouts. The ride to Lang's Ranch was made in two days, the distance from 90 to 100 miles.

Within a few days of my arrival at Lang's Ranch the pack trains with fresh supplies for Capt. Crawford's command were ready to start for Mexico, with Troop "C," 4th Cavalry, under Lieut. Guy Huse, 4th Cavalry, as escort. Nothing of consequence had occurred since the time of my leaving Capt. Crawford, near Oputo, and my reporting to him with the new supplies.

Being now thoroughly equipped for further scouting, the search for hostile Indians was resumed with fresh vigor. The heat in the deep, rocky cañons of Northern Sonora was some-

thing frightful, and water, except on the rivers, was scarce and poor when found.

On the 9th day of August, near Nacori, in Sonora, Capt. Crawford met Lieut. Day, 9th Cavalry, with a detachment of Indian scouts, who had just attacked and captured a camp of Chiricahuas, women and children, back in the mountains from where we were. Capt. Crawford took up the trail of the bucks of the party and our pursuit of them across the Sierra Madre is well described in the report of Lieut. Britton Davis, who led in the pursuit:

"The mountains at that point were so abrupt that we experienced great difficulty in crossing them; a detachment of packers and scouts was kept continually ahead of the pack trains for the purpose of making a trail; but even with these precautions the difficulties of proceeding were so great that several mules were killed and injured each day through rolling down the mountains.

"After reaching the summit of the Sonora slope of the Sierra Madre, I was detached and sent forward with a party of scouts, under Seiber, to follow the trail of the hostiles, who were moving east and traveling rapidly. We took with us six days' rations, which, with the aid of horse meat, beef and game, when obtained, lasted us eleven days. Heavy rains fell almost daily, and at times it was almost impossible to keep the trail. The hostiles, on the contrary, had nothing to carry but themselves, and were also driving a number of fresh animals. As soon as their horses would give out they would kill them and mount the fresh stock they were driving. They lived upon the flesh of the horses they had killed, and upon such wild fruit as they could gather along the route. Fearing that we would run upon them at any moment and be discovered before we saw them, it was necessary to keep a few scouts eight or ten miles in advance each day, and our progress was necessarily slow. The country through which we passed was so soft that our mules, with even their light loads, sank to their knees in the mud, and riding at times was out of the question. Had the Indians caught sight of us they would have scattered in every direction and further pursuit for the time being would have been useless.

"After leaving the scene of the fight (with Lieut. Day) the hostiles moved nearly due east across the Sierra Madre, a distance of nearly two hundred and fifty miles, reckoned from Nacori on the western slope to Via de Bueneventura on the eastern slope. Arriving in the vicinity of Via, the trail turned towards the southeast, avoiding the larger towns and ranches until the town of Santa Clara was reached, at a point, following the Indian trail, about a hundred miles further to the east."

We must also leave Lieut. Davis' trail here, however interesting it may be, and return to the main command under Capt. Crawford. The difficulties encountered by Lieut. Davis, with his small command of selected mules, not too heavily loaded, were of necessity less than those of the main column. Mules hate mud, and the more that go through it the worse the mud becomes, and the more they balk at it. For eight days in succession we were wet through all the time, and with no shelter at night, in those high altitudes, the cold went to your very bones.

There was only one compensation, and that was the view we got from the high points on the west of the Sierra Madre. I shall never forget the scene that was unfolded to us one morning that broke clear, after a very severe rainstorm the day and night before. We were then camped on the top of the range with a view limited on both sides only by the length of your vision and the rotundity of the earth. We were above the clouds, which filled all of the valleys with a mass of white, billowy vapor, the rough and forbidding mountains of Sonora falling in tier after tier toward the Pacific Ocean, which we imagined that we could see. Capt. Crawford was much impressed with the grandeur of the scene, and, as fate would have it, within less than six months lost his life on one of the cloud-environed mountains at which we were looking. It soon became evident to him that at the rate we were traveling it would be impossible to overtake Lieut. Davis, with the whole command, within double the time, six days, for which Davis was rationed. The captain therefore detached me, with two good packers, six selected pack mules and eight Indian scouts, to push forward and overtake Davis before he got out of food, as it was of

the utmost importance that some of the command should keep in touch with the hostiles, touch meaning on a hot trail, a hot trail being less than 24 hours old.

I started out as directed, and had no difficulty in following rapidly the plain trail left by Davis and his mules, except in such places where he had experienced trouble, due to the nature of the country. As the trail led east we were bound to get out of the mountains sooner or later, and at noon of the day on which we finally emerged from the main range and got into the foothills three of Lieut. Davis' scouts, coming back on the trail, met me with a request to Capt. Crawford to forward supplies to him, Davis, at once. On reaching a cattle range in the foothills I put my small detachment into camp at the same place where Davis had camped with his scouts a few days before. They found the remains of three head of cattle that Lieut. Davis had killed and butchered for his Indians. Before killing them he had tried in vain to communicate with a Mexican cowboy, whom he saw on the range, but the sight of the Indians with Davis was too much for his nerves, and the valiant greaser vanished. Both Davis and I had orders to kill what cattle were necessary for food and to give receipts, to be taken up by Capt. Crawford on his arrival. Whether the receipts were ever taken up is more than I know; but there can be no doubt about my having been, and it is only due to execrable marksmanship on the part of the Mexicans that I am here to tell of it.

The Mexican herder who had seen Lieut. Davis and his scouts did not stop until he reached San Miguel, many miles from the camping place. There he roused the town and turned out the Voluntarios to suppress the invasion of the Tejanos (Texans) and Broncos (as they called the wild Indians).

Lieut. Davis had broken camp very early and had followed directly on the Indian trail across a range of high hills. Neither he nor his scouts, who had come back to guide me, by a short cut through a cañon, and had thus missed the Mexicans on his trail, had the faintest idea that he was being pursued.

On breaking camp at 4 a. m. I was guided by one of the Indians through the cañon in question and drove my mules to their utmost capacity. At about 2 p. m. the Indian guide could not be found; he and the other two had slipped off to look for

game whose sign they had seen. The trail became faint just here, and rather than get off it or overrun it I determined to take the packs off the mules and give them a rest for an hour or so, knowing that I could make Davis' camp before night with an hour or two of daylight.

While we were pushing down the cañon the Mexicans had followed the trail over the mountains and were just in advance of us. They had formed an ambush just a few yards ahead of where I stopped and would have murdered us beyond doubt had we not stopped just where we did.

While helping the packers to unload and cover the cargoes from an approaching rainstorm one of my Indians said in Apache, "Nantan, No-ki-ai," "Captain, Mexican," pointing to a mounted man against the sky-line. I looked at him, and he was like any other range rider in a similar country riding on high points to look for cattle. I reassured the Indians and went on with my work, arranging the rations under a cottonwood tree, when a volley burst from the crest of the hill where the Mexican had been seen and the leaves were cut from the tree over my head. I had put my rifle and revolver on my bed roll and started for them, but concluded it must be a mistake on the part of the Mexicans, ordered the packers to take cover; the Indians had needed no warning, had gotten in a strong position, and the two tame Chiricahuas who had come back from Davis to me promptly returned the fire. I ordered them to stop firing, but, knowing the Mexicans better than I, when they could not shoot, they lit out for Davis, as soon as my back was turned. I ran from under the tree to open ground and towards the hill, calling to the Mexicans that I was a friend and American officer. In a moment the firing ceased and I went and stood on a small bare mound, waiting for the commander to come down. While I was standing there, alone and unarmed, the fire was by command, for I heard it, concentrated on me. It was a noble sample of Mexican chivalry, and profanity was the only weapon I had to meet it with. The vigor of my remarks had the desired effect and the firing ceased. Three men detached themselves from the main body and came towards me. On seeing them start, I called to one of my packers, who spoke Mexican fluently,

to come to interpret for me. The Mexicans came up, shook hands most cordially, passed the compliments of the day and season, and just as I was about to warm up into friendship and forgive them for having tried to pot me, with one accord they raised their carbines on us and wanted to know why we had killed those three head of cattle. At once it flashed over me that they had mistook me and my little squad for Davis and his fifty scouts. I told them I had killed only two and that the man they wanted was just over the hill with fifty Indian scouts. That made them think quick and hurry. They had me where I could do nothing to help myself, and my Indians could do nothing to help me. Finally we were all started, the two packers and I mounted bareback on our mules, the Indians tied together on foot, toward Bueneventura. I declined to go unless they untied the Indians, whom they had forced me to disarm, and they did so.

En route to Via we met Lieut. Col. Mesilla of the 11th Mexican Cavalry, with cavalry and infantry marching to repel the invasion of Mexico by me and my poor little eight Indians.

My explanations were listened to, but evidently doubted. We were marched to Via, where the entire population turned out to see the show, and I was called many vile names, which, fortunately, I did not understand.

We were turned over to the Mexican Regulars, the officer of the day, a courteous Mexican gentleman, giving us into the charge of the officer of the guard.

The Indians were put in the barracks and the two packers and I were allowed to remain in the room of the officer of the guard. On entering the compound, a little Mexican soldier, moved by pity, handed me a very nice looking ear of green corn, roasted to a turn. I accepted with thanks and slipped it into my pocket. It was my only ration from 4 a. m. that day until the next morning.

The officer of the day kindly gave us a large glass of aguardiente; as I needed my head, I gave my share to the two packers.

The two Indians who went from me to Davis, when the firing started, confirmed a report made to him by one of his own scouts, who had seen the trouble from a high point, and

Davis at once started with his command to my assistance. Before he could reach us we had been hurried towards Via, no guard even being left over my property. He followed with his scouts just over the crest of the hills, beyond which we were being taken, and halted just outside of town, concealing his command. He had seen the meeting with Col. Mesilla from a distance. At dark, Davis, who spoke Spanish with ease, entered town and placed himself in communication with the presidente. That official refused to act until the return of the military commander. Upon his return, my statements having been proven true by the marks on the property and aparejos, after a consultation between Col. Mesilla, the presidente and Davis, I was paroled and ordered to report to headquarters at 9 a. m. It was then a great pleasure to hear Col. Mesilla give the Voluntarios "Hail Columbia" for the part they had taken in the affair, made them restore what they had tried to steal, and express his regrets for what had happened and his pleasure at my not having been killed, to all of which I heartily agreed, especially the latter.

My love for Mexico and the Mexicans had not been added to by my experience, and when, after joining us, Capt. Crawford told me that he wanted me to take dispatches north to Gen. Crook at Fort Bowie, I was very keen for the start.

I am happy to state that Capt. Crawford complimented me very heartily on getting out of the scrape as well as we did, saying that had I allowed my Indians to return the fire and open a fight, Davis would have been drawn into it, then Col. Mesilla would have joined in the battle, and as we were two hundred miles south of the line and with nothing but Indian scouts, Troop "C," 4th Cavalry, having been sent north from the west side of the Sierra Madre, we would have been in a desperate state, even if victorious, not to mention international complications.

The ride north with dispatches was uneventful, except that we stood, the packer and I, and counted ninety-five antelopes file slowly down to a small stream to drink and did not fire a shot. We were under orders not to shoot on the trail. It was not the first time. Once on the west side, in Sonora, Capt. Crawford and I, while riding in the lead, came upon a buck and two

does within twenty yards, standing perfectly still and looking at us with wonder in their eyes. They had probably never seen man or mule before. I begged to be allowed to shoot; fresh meat had long been a stranger to us. He only laughed at me. Finally I dismounted and threw a rock at the buck to ease my feelings. Within a few days we returned over the same trail; the order about shooting had then been revoked, and the packers were busy all day picking up deer left by the Indians on the trail, to be packed into camp.

Once while in the heart of the Sierra Madre, while the shooting embargo was on, I had a most exciting chase on muleback after a flock of young turkeys. They got mixed up and I very nearly caught one. The Apaches are reported to have frequently run them down on foot. That I have never seen, but I have had them bring to me a well-grown fawn that had been run down by them and caught.

After crossing the stream where the antelope went to drink, we knew of no water for many miles to the north of us, none, in fact, short of Media, on the Janos plain. We rode all day, and as the sun was sinking caught sight, over to the left of our course, of the vivid green of the cottonwood. It did not necessarily mean water that we could get at, but we had to camp somewhere. On reaching the spot we found the worst looking brown mess, wet, and by filling the coffee pot and cooking its contents we got a half potful of stuff soft enough to flow and the color of black coffee. By making a strong infusion of coffee we were able to moisten our dry mouths and tongues during the night. The mules had to take theirs straight.

The next morning we started out very early with no hope of water within twenty-five miles. Just before noon my mule, that was in the lead and was beginning to show symptoms of great fatigue, suddenly sniffed the air, pricked up her ears and took a smart trot. The other mules, the packer and I knew she smelt water. Within a short distance she came to a beautiful, clear spring of pure water, bubbling up on the open prairie. The mules kneeled and stuck their heads in nearly to the eyes, and we were not slow in assuming a position where gravity assisted the flow of an elastic fluid. Oh, how good it was—the remaining twenty-five miles of the day's march seemed a mere step

compared to the same number of miles from the cottonwood mudhole to the spring.

Capt. Crawford did not return to the United States, but went with his command to the Carretos Ranch, where I joined him later with fresh supplies and with Lieut. Faison, 1st Infantry, to replace Davis, who had requested to be relieved, in order to resign and take advantage of a good business offer.

The hostiles had led Davis a dance after he left us at Via de Bueneventura and had finally escaped into New Mexico, where they stirred things up for a while.

Soon after my return to the command at Dos Carretos news came to us that Major Wirt Davis, with his command of soldiers and Indian scouts, had had an engagement in Sonora with a band of Chiricahuas and that the hostiles were heading east towards Dos Carretos. I was ordered to get rations for fifty scouts ready at once and scout towards the north for signs. I left camp at 3 a. m., and at 4 a. m. came within sight of a camp-fire too large for Indians, and found Major Davis with his command just come out of the mountains, having left the trail of the hostiles about four miles to the north of where we were. I at once moved on, and at daylight my scouts picked up the trail. We followed it on the open prairie until noon. I say we, but a large part of the time I saw no sign, but my Indians could run on the trail, it was so plain to them, and led as straight as a crow flies towards the water hole which we reached at noon. My mules and men both needed water and rest, having been on the road since 3 a. m., so I concluded to take off the packs for an hour or so. At half past 1 we started to pack up, and at 2 took the road. On leaving camp the Indians started out ahead, as usual, and traveled straight across the prairie in our original direction. I will say here that we left the Indian trail about a half mile to the north of the waterhole. I took it for granted that the leading Indian had the hostile trail and was following it. After a while I noticed that the Indians in front spread out and hesitated. I at once rode forward to ask what was the matter, and found that they had assumed that the hostiles would keep on as they had been traveling, but had not really had the signs since we left the water. I told them that when they had found and followed the proper trail we would think about making

camp, but not before. I was mortified at my own carelessness and mad at the Indians. We picked up the trail and camped on it when it was too dark to see farther. Major Davis with his command, and Capt. Davis with his, joined us early the next morning and started as lively a chase across the mountains as had ever been seen in Arizona. The hostiles when abreast of the waterhole where my Indians made their noon camp had turned at right angles to their original direction and started due north for Arizona. It is safe to say that my Indians covered at least fifty miles during the day's march.

The nature of the pursuit of the Indians from the Janos plain is clearly set forth by the following extracts from the reports of Major Wirt Davis, 4th Cavalry, and Gen. George Crook:

"At 8 o'clock p. m. Sept. 25th the command camped on the Dos Carretos Creek. Just before daylight on Sept. 26th Lieut. Elliott, 4th Cavalry, with fifty Indian scouts, who had just been sent out by Capt. Crawford (whose command had been camped on Dos Carretos Creek, four miles above my camp, and who had received my dispatch about 10 p. m. Sept. 25th), passed my command, going in the direction of Middle Mountain to cut the hostiles' trail. Just as I was leaving on the 26th Capt. Crawford joined me with the balance of his command. After considerable work and much time spent in following the trail of single horses, we struck the main trail in the Raton Mountains, ten miles west of the point where they had scattered. Here I sent a courier to Lang's Ranch with dispatches for the commanding officer, and also dispatches for Gen. Crook, stating that the hostiles were traveling in a northerly direction towards Guadalupe Cañon. His trail again led out four or five miles in the plain and then returned back into the Guadalupe Mountains. It is probable that they saw Lieut. Elliott's scouts, who, coming from the Middle Mountain, joined me on the 27th. The whole command followed the trail as rapidly as possible. We reached Guadalupe Cañon Sept. 28th. The hostiles had crossed the cañon some time in the morning, about five miles above the cavalry command stationed there. Before daylight on Sept. 29th Capt. Martin, 4th Cavalry, with his troop ('H') and some Indian scouts, started in pursuit. As my scouts had followed the

trail rapidly about two hundred and seventy miles, and had torn moccasins as well as torn feet, I sent Capt. Crawford and his scouts (who were comparatively fresh, as they had been in camp on Carretos Creek, so Capt. Crawford told me, for two or three weeks) on the trail. I sent a courier to Gen. Crook, at Fort Bowie, informing him of my whereabouts and of the situation, and stated that it was believed that the hostiles (between twenty and twenty-five) intended going to the reservation to get recruits, or to make a raid on other Indians, Chatto and several of the other Indians concurring in this belief. This party of hostiles (Chihuahuas) killed on the trail, between Macosari Mountain and Guadalupe Cañon, while my command was pursuing them, thirty horses, mules and burros."

EXTRACT FROM REPORT OF GEN. GEO. CROOK.

"The Indians, having been driven out of Mexico by the scouts, crossed into the United States through Guadalupe Cañon within a few miles of a camp of two troops of cavalry about daylight on the morning of Sept. 28th. They were closely followed by both Major Davis and Capt. Crawford. It being evident that the hostiles intended to raid the White Mountain Reservation or go into the Mogollones or Black Range in New Mexico, dispositions were made to prevent this. Cavalry were directed from different points by converging routes toward the Gila. Troops were established in positions to prevent the Indians crossing the San Simon Valley into Stein's Peak Range; others were placed along the railroad, where they would be available for instant transportation by rail to threatened points. The scouts followed the hostiles, and several troops of cavalry were moved to points where it was thought possible they might ambush them. The renegades took the roughest possible trails over the Chiricahuas, twice endeavored to cross the San Simon Valley, but each time were frightened back into the Chiricahuas either by seeing the dust of moving columns or discovering their trails across the valley. They then crossed the Sulphur Spring Valley, by night, into the Dragoons, whither they were followed by Crawford's scouts. Through this range back into the valley, south towards the Mule Mountains, where their trail suddenly turned sharp to the east

and went back into the Chiricahuas, Crawford's scouts following them persistently.

"The stock of the hostiles by this time was worn out, and though they had gathered all possible along their route, they were finally absolutely dismounted, and troops were in such a position that it seemed probable the entire band would be captured or killed. But just at this juncture they succeeded in remounting themselves with the best stock in the country, and, finding that it would be impossible to get north of the railroad, they returned to Mexico. Capt. Viele, 10th Cavalry, followed them with two troops as far as Ascension, Chihuahua, from which point, further pursuit being useless, he returned with his jaded command to his camp in Cave Cañon.

"The remounting of the Indians was, in this instance, particularly exasperating.

"The cattlemen of the San Simon had gathered in the White Tail Cañon on the east side of the Chiricahuas for the beginning of their fall round-up.

"In spite of the warning they had received the evening before, that Indians on foot had been seen in their vicinity, they lariatied their cow ponies, the best stock in the country, around a ranch in which they all slept. In the morning all of their stock, with the exception of two or three, were gone, and the Indians had secured about thirty of the best horses in Arizona. Several times before and since parties of Indians have been dismounted by persistent pursuit and escaped in the same way by securing remounts; and this, too, in spite of constant warnings and importunities to ranchmen to secure their stock. The Indians acted as if they could secure stock with perfect impunity. At one time they took a quantity of stock from a corral belonging to the Sulphur Springs Cattle Company under circumstances that made it evident that several men who were in the ranch knew what was going on, and although there were only three Indians in the party, no attempt was made to prevent the stock being taken.

"At another time, early in June, a party of Indians, numbering perhaps a dozen men and forty or fifty women and children, drove up and shot down several beeves within a mile of the largest ranch in Arizona, in broad daylight. There were twenty cowboys in the ranch at the time and all fully armed, and yet the

Indians went into camp and cooked the meat, and some time during the night left; and during all of this time not the slightest attempt was made to interfere with them, or even to give information to troops.

"The Indians having returned to Mexico, the troops were sent back to their proper stations. The scouts having been constantly on the march since the beginning of the operations, and the terms of service of many of them having expired, it was thought best to discharge them and enlist others, and while the new commands were being organized as thoroughly as possible refit and reorganize the pack trains, which by this time were almost worn out."

\* \* \* \* \*

The chase described in the above extracts was lively in the extreme. On turning north from the water hole in the Janos plain, where my scouts lost the trail, the Indians made for the Raton Mountains, entered them, circled again out into the open plain, re-entered them and took up a position on a point, which they, as usual, fortified with stone breastworks, commanding all approaches from the front and with an open line of retreat along the hogback from the point to main range in case of attack. They left this position during the night and started as straight as the country would permit for the Guadalupe Cañon, both commands following in hot pursuit, in the early morning. The trail was warm, aye, redhot, the coals still glowing in what fires they had made. Though there were many chances to ambush and kill the leaders of our party, had they wished to do so, the Indians made no stand, and the nature of the country was such that it was impossible to take precautions against being ambushed. One or the other of the younger officers was always in the immediate advance with the leading Indian, and at no time did any of our Indians show the least disinclination to drive ahead, and all seemed keen for a fight, which the hostiles seemed as keen to avoid. Luck was against the two troops of my regiment stationed in Guadalupe Cañon, otherwise they would have had a pretty fight with the hostiles and could have probably struck them on open or nearly open ground north of Guadalupe Cañon. Major Davis had sent word to Lang's Ranch how the Indians were heading; this message was transmitted to the commanding

officer at Guadalupe Cañon. By one of those circumstances fortuitous for the hostiles, but fatal to the chances of the officer in question, a sleepy head on the shoulders of the officer in charge of the Indian scouts in his camp prevented two scouts being sent out with the couriers scouting for Indian signs between Guadalupe Cañon and Lang's Ranch, as was always done, and the two soldiers rode over the trail and did not notice it.

As soon as I reached Guadalupe Cañon in the lead I saw at once that no troops had taken up the trail, rode forward on it to make sure, and then sent word back to Major Davis to that effect. On his arriving there, where we had been ordered to stop, he sent word to the camp four miles below me on Guadalupe Cañon and the commanding officer knew for the first time that the Indians had slipped by. Major Davis was rather wroth and made a few caustic remarks, but the Indians were gone. Our trains were somewhat demoralized by the forced marches, and as they did not come in late at night I returned over the trail to bring them in. They were wrecks when I found them, but a little discipline soon put them in shape and we returned at once to our camp in the cañon. From there, as shown in Major Davis' report, we took up the hostile trail, following it to the south end of the Chiricahuas Mountains, where the Indians nearly ran over a camp of the 10th Cavalry, who immediately pursued them hot foot. Nothing yet invented has ever caught a Chiricahua in the mountains, certainly not from the rear, and the hostiles got away. Other troops of cavalry took up the cry, dashed in, were distanced, and the twenty or twenty-five bucks seemed to enjoy the sport. We were constantly on the trail, and as our Indians were good trailers and had not forgotten the lesson when they overran the trail on the Janos plain there was no similar occurrence, and the hostiles knew we were always after them and would stay. We chased them out of the Chiricahua Mountains over to Cochise's stronghold; from there across Sulphur Springs Valley, within a mile or two of White's Ranch, back into and across the highest part of the Chiricahuas, and out of them near White Tail Cañon, where they got new horses and near where Capt. Viele with the two troops from Cave Cañon, over whom they had nearly run on their excursion north, took up their trail and ran them back into Mexico.

Having been absent from my regiment and troop since July, 1884, and Troop "H," 4th Cavalry, of which I was second lieutenant, being left, by the absence of the first lieutenant on recruiting duty, and of the captain, on sick leave, without a commissioned officer, I applied, upon the reorganization of the command, to be relieved from duty with the Indian scouts and placed in command of my troop in Guadalupe Cañon. The application was at first refused in the most complimentary way, but upon my making it plain that service in Mexico, where I had suffered such indignity at the hands of the treacherous natives, would not be at all agreeable to me and might tend to spoil my usefulness with scouts in that country, I was allowed to join my troop. Within four months Capt. Crawford was attacked in Sonora, Mexico, by Mexicans from Chihuahua, Mexico, and murdered. Though he was the only support of his widowed mother and sister, no reparation was ever obtained from Mexico for the outrage against an American officer acting under orders from his government and under international agreement.

Though Gen. Crook did not write this, the closing paragraph of his report, until he was about to leave Arizona, I will quote it here:

"Before closing this report I desire to express my appreciation of the conduct of the officers and men during the many months they have been engaged in the discouraging and well-nigh hopeless task. Where all have done well it seems invidious to mention individuals, but while my thanks are due to all, it seems proper to mention the names of Capt. Wirt Davis, 4th Cavalry; the lamented Crawford, who sleeps in a soldier's grave; First Lieut. M. W. Day, 9th Cavalry; First Lieut. M. P. Maus, 1st Infantry; Lieuts. Britton Davis, 3d Cavalry; Charles P. Elliott, R. D. Walsh and H. C. Benson, 4th Cavalry; Leighton Finley and W. E. Shipp, 10th Cavalry, and S. L. Faison, 1st Infantry, who commanded expeditions or scout companies in Mexico, and bore, uncomplainingly, the almost incredible fatigues and privations as well as the dangers incident to their operations.

"Assistant Surgeon Henry P. Birmingham, U. S. A., at his own request, was sent with the expedition into Mexico under command of Capt. Wirt Davis, and earned the thanks of the department commander by his efficient and valuable services."

## THE STRUCTURE AND FUNCTIONS OF THE HORSE'S BACK AND THEIR RELATION TO THE FORM AND USE OF THE MILITARY SADDLE.

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By OLOF SCHWARZKOPF, VETERINARIAN, THIRD CAVALRY.

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WHILE the improvement of the military saddle has been an old and never-ceasing theme with officers of European armies, which has led periodically to changes in the construction of their saddles, the question whether we should change our own army saddle has been of rather recent origin. The writer can think back to a time of army opinion, when it was a sacrilege to criticise the McClellan saddle. Even today we have many older officers, and young officers as well, who faithfully believe the McClellan to be the best army saddle in the world, and they would never be reconciled to any change in pattern that may be radical.

On the other hand, there can be little doubt that the way is being gradually cleared for a modification of our present saddle. That there is cause enough for improvement is admitted by the most conservative among us. Several recommendations have already been made in what direction changes should be undertaken, and no less than seven articles on the subject have appeared in the *CAVALRY JOURNAL* alone during the last two years. So far, the subject has been mainly approached from the standpoint of experience with the saddle and in the saddle. This constitutes the tale of the rider. I wish to add here a few words in behalf of the horse, as it were, going a little more definitely than is usual into the construction and functions of his back, which carries, balances and moves the combination of dead and live weight implanted thereon by the saddle, pack and rider.

If the several scientific facts and principles, enumerated below, are steadily kept before our eyes, then the formal construction of the saddle, generally speaking, comes almost by itself, and only the arrangement of special features can lead to differences

of opinion. Such may never be permanently adjusted to the satisfaction of all concerned, because they often spring from temporary necessities or changing standards and are much subject to individual preferences.

#### STRUCTURE OF THE HORSE'S BACK.

The trunk of the horse, of which the upper part forms his back, consists of the bony vertebral column, the bones of the chest and of those of the pelvis (haunch-bone). Bones consist of hard, unyielding material, and are classified as the passive organs of locomotion. They serve as supporters and levers, brought into diverse angles by the contractile action of the muscles which connect them.

The bony spinal column is the principal carrier of the skeleton. It is neither straight nor horizontal, as one may judge from the outward appearance of the living horse, but is perceptibly curved downward from rear to front. Comparatively speaking, it forms a tube, because each bony segment (vertebra) has a hole in its center for the reception of the spinal cord. Each vertebra, moreover, has several bony branches, one high spinous process and two shorter transverse processes for the attachment of ligaments and muscles; also articular processes which lock by joint with their neighbors. By this two-fold connection the segments form the vertebral column as a whole.

The back of the horse, as spoken of in hippology, consists of the last fourteen dorsal vertebrae and the first five lumbar vertebrae. It is subdivided into the withers, made prominent by the high spinous processes of the fourth to the tenth or eleventh dorsal vertebra, according to the varying conformation of the horse, into the back proper from the twelfth to the eighteenth dorsal vertebrae, and into the loins consisting of the first five lumbar vertebrae. The arrangement of the spinous processes of the back is remarkable in that those of the fore-part of the back incline backwards, while those of the hind-part incline forward—all towards the fourteenth vertebra as a common center.

The barrel-like chest and the greater part of the belly (abdomen) are formed by eighteen ribs which spring from the eighteen dorsal vertebrae. The first eight ribs, flat and fairly straight downward, are termed true ribs, because they unite firmly with the breast-bone (sternum) from in front of the chest to the girth

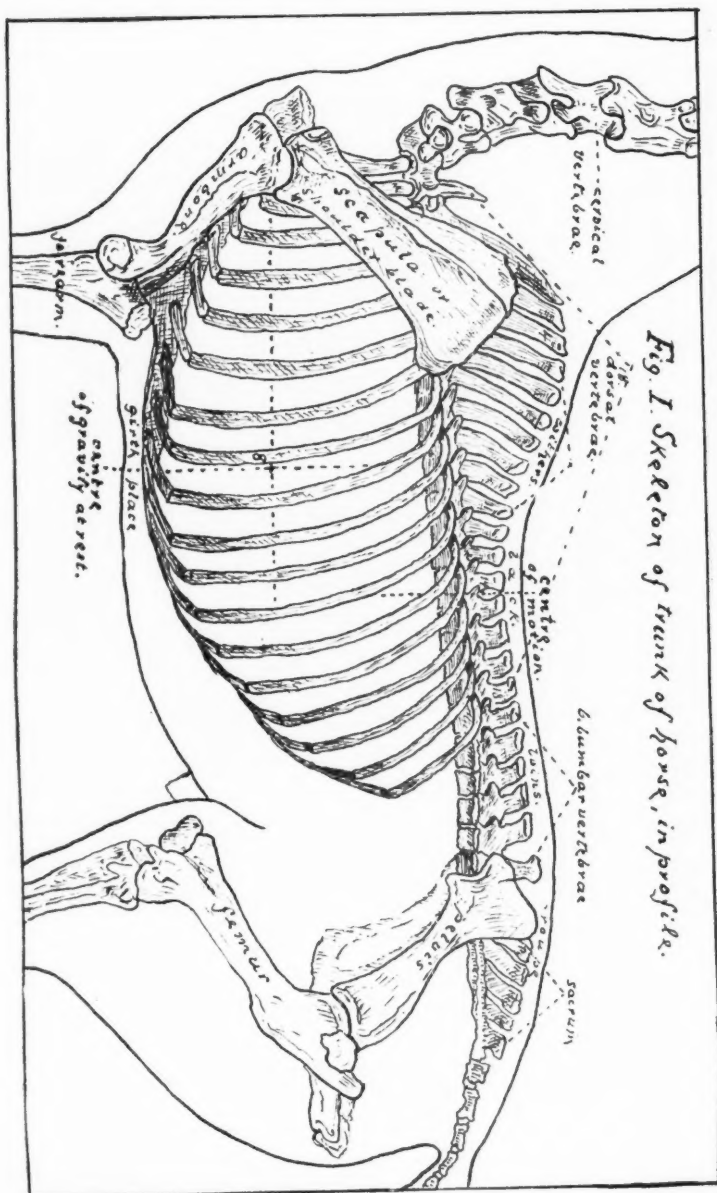


Fig. 1. Skeleton of trunk of horse, in profile.

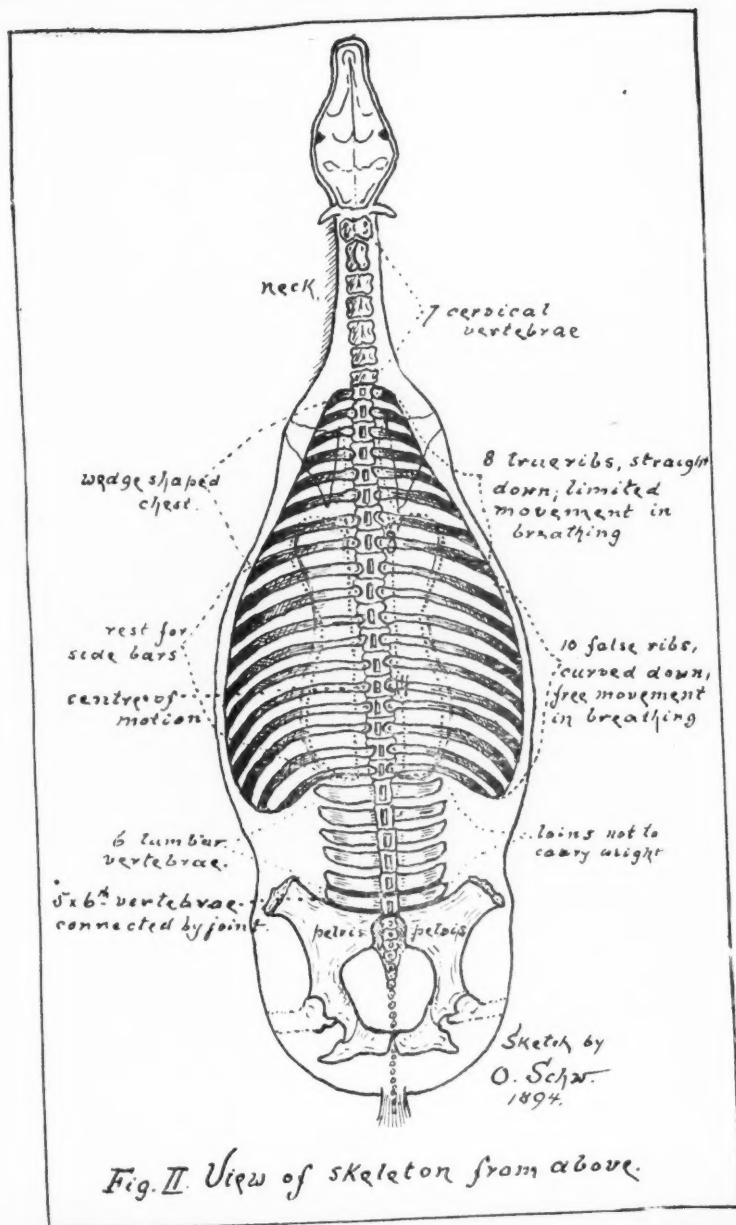
place; the other ten ribs, narrower and more curved downward, are called false ribs, as they only unite with each other by elastic cartilages and have no support from below. The first two ribs are almost completely covered by the shoulder blade, the third to fifth ribs partly so in their upper curvature.

The side view of the skeleton, as given in part above, is fairly well known, while a view from above is new to the uninformed, often almost a revelation. It is at once seen that the trunk of the horse does not exactly form a barrel, a name applied to it by some horsemen, but that it resembles a cone, a fact which is seldom fully grasped because difficult of demonstration from any other view. It is best seen in a horse thrown and rolled on his back, when the wedge-shaped form of the chest is apparent. This illustration also shows that the vertebral column lies true in the median line of the body and that the descent of the ribs downward begins much closer on the first vertebra than on the last. This gradual but steady expansion of the ribs from front to rear presents one of the difficulties in finding a proper rest for the under surface of military saddles, as the curvatures are hardly ever alike in any two horses.

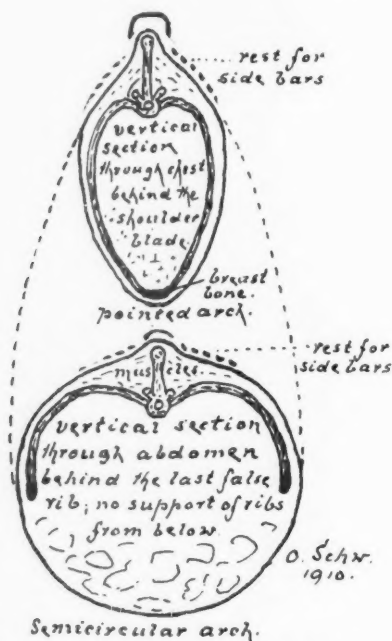
The impressions gained by looking at the skeleton from above are further confirmed by views of vertical sections of the chest behind the shoulder and of the abdomen behind the last false rib. The difference between the egg-shaped (pointed) section through the chest and the round section (semi-circular) through the belly are, indeed, very marked. The dissimilarity in the curvature of the ribs may again be noted here from another view. The dotted lines on both sides of the upper ribs indicate the thickest layers of muscles on which the side bars of the saddle can be safely placed to prevent greater injury.

#### FUNCTIONS OF THE HORSE'S BACK.

The functions of the back of the horse are not as well worked out in veterinary physiology as are the functions of the extremities, of which we have quite accurate knowledge. In fact, some fundamental points regarding the value of the horse's back for carrying weight are still under dispute. Some authorities maintain that the horse is not designed to carry weight, but is built for draught, because a horizontal spine is not as well adapted to that purpose as is the upright spinal column of man. Other authori-



ties point to the fact that the incline of the spinous processes, backward and forward towards a center, resembles the construction of arches in architecture. (See Fig. I.) The latter contention is upheld by the cross-section of the fore-part of the back which represents a pointed arch, and of that of the hind-part of the back which exhibits a semi-circular arch. (See Fig. III.)



*Fig. III. Sectional views of chest and abdomen.*

This scientific dispute is mentioned because one can yearly hear divergent opinions of officers discussing the subject of saddles and sore backs after the annual marches and maneuvers. One will maintain that the whole trouble is that the horse is not fit to carry saddle and weight, while another argues that it is a wonder that he does carry the absurd loads planted on his back. Both can cite facts to sustain their contentions.

## ELASTICITY AND STABILITY OF THE SPINAL COLUMN.

Going back far enough, we find that each vertebra is covered on both ends by elastic cartilages which may be likened to a piece of rubber inserted between each bony section. It is easy to understand that the bending of a few joining vertebrae must thus be limited in any direction, but the curving of the spinal column as a whole can be considerable. The lateral flexion of the spine can be observed when a young horse scratches his ears with a hind hoof, or when we note the practice of some horse-shoers—in civil life, of course—tying the tail of a refractory horse to his halter to lessen the danger of kicking, which is insured by the stretching of the muscles of the back. In both cases the neck is bent most, but the back proper so much so as to approach a semi-circle.

The upward bending of the spine can also be considerable, but depends somewhat upon the conformation of the back. The well performing buckner generally has arched loins, and when he throws himself up into the air with all four legs stiff, and the head, neck and croup bent low, his spine curves upwards to a remarkable degree, as seen in instantaneous photographs.

The downward bending of the spine is the most limited in normally built horses, principally because the vertebral column presents a natural curvature upwards. The elasticity of the spine is greatest in young horses under 6 years of age, and decreases with age.

The lumbar vertebrae, constituting the loins, serve as a bridge between the fore-part and hind-part of the trunk. If they are short and broad, a horse is "well-coupled." Their transverse processes are wide, comparatively thin and somewhat springy, and are not supported from below, as are the true ribs, but stretch out free into the abdominal cavity. It is evident from their structure and position that they are *not intended to carry weight*. The movement of the lumbar vertebrae is restricted because their bodies join with each other by sockets. This prevents lateral flexion. But the fifth and sixth lumbar vertebrae form joints with each other and with the sacrum, which explains the "giving-in" of ticklish horses when pinched with the fingers, or the so-called "weak kidneys" of horses that flinch when mounted by an un-

elastic rider. In neither of these cases is there a flexion of the whole spinal column.

The stability of the vertebral column, so necessary in cavalry horses, depends upon its direction and, not the least, upon the size of the spinous processes of the vertebrae. If these are long and wide, then the ligaments connecting them are large and have ample space to tie them firmly together. They can then also serve properly as fulcrum for the muscles of the back. It is very necessary that the vertebral column be normally arched in its direction, because weight can then be carried by the back with the least muscular strain.

The stability of the spine is greatest in full-grown horses. In cavalry horses over 15 years of age the articular cartilages are sometimes partly ossified, as found on *post-mortem* examination.

#### FUNCTIONS OF THE MUSCLES OF THE BACK.

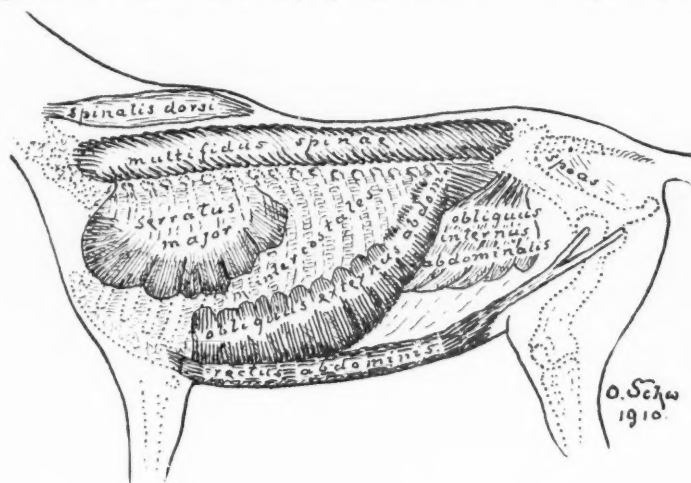
It is always a difficult task to describe the functions of the muscles, even with the aid of illustration. A practical demonstration on the prepared cadaver is the only means to properly show their varied courses, their intermingling with each other, and their single or double action. The subject is so fundamental, however, that it cannot be merely pointed at, and an attempt is made here to briefly explain the functions of the muscles of the back with a special view of the use of the saddle as affected by the movements of the back.

The muscles, classed as the active organs of locomotion, accomplish by their contractile power the movements of the skeleton. Their importance in the economic life of the horse is so great that they represent 45 per cent of the body weight. All muscles are supplied with two kinds of nerves, motor and sensory, and their functions constitute complicated processes dependent upon the peculiar minute structure of the muscles. The sensibility of the muscles is normally limited, but if they are injured and inflamed they evince great pain. The muscles of the back are interwoven with tough, tendinous tissue to offset the great strain imposed upon them in all movements of the horse.

The lever action of the muscles upon the bones is very interesting and peculiar. The lever of the second class produces force and extension; those of the first class and third class, speed and flexion. While the lever is a machine, this animal lever differs

from the ordinary and still more from the mathematical. It must never be forgotten that the horse is an organized animate machine, producing intelligent force by making the muscles obedient to his will power.

Looking now at the bony skeleton, so much at variance with the contour of the horse, one wonders how the large, empty spaces produced by the junction of the various bones are filled out to make the outline resemble the animal. This is well accomplished by the several layers of fleshy muscles. On the upper back there is a long, triangular space formed by the spinous and transverse processes of the vertebrae (Fig. I), which is first occupied by a



*Fig. IV. Deeper layer of muscles of trunk.*

muscle of great strength, resembling a twisted rope (*multifidus spinæ*). It springs from the sacrum, runs all along the back and ends on the first part of the neck, thus binding together the dorsal and lumbar portions of the back. Opposite and below, springing from the breast-bone and ending on the haunch-bone, runs an abdominal muscle (*rectus abdominis*) which binds together the lower part of the trunk from the chest to the pelvis, and under certain impulses also acts as a flexor to the spine above. Both muscles supply the primary upper and lower cords holding the trunk in position. Between these two are located other abdominal

muscles, which respectively hang up the flanks upon the pelvis or connect the ribs with the pelvis, while the first ten ribs are covered by the *serratus major*, which connects the shoulder with the back and regulates the pendulous motion of the shoulder so plainly visible when riding in the saddle.

These deeper situated muscles are overspread by upper layers of others, some of which have separate action, while others assist and accommodate each other by forming groups. In this manner an injured muscle may be supplanted by another. The twisted muscle of the back is first covered by a fleshy muscle (*longissimus dorsi*); by another, which is first fleshy, but becomes tendinous on the rear part of the back and loins, and finally by a third, which principally covers the withers and part of the neck. Combined, these three muscles act as extensors of the spine, and assist in raising the trunk and fore-quarters in the movements of gallop, jumping and rearing, provided that the fixed point lies in the hind-quarters; if the fore-quarters are fixed, then these same muscles act in kicking, and if their contraction is one-sided, then they curve the spine laterally. The first of these muscles are ultimately covered by the *m. latissimus dorsi*, made known in books on hippology as the muscle upon which the saddle rests; its chief function is confined to flex the arm-bone towards the back.

*It will now be seen that the fore-part of the back is covered by five fleshy muscles, while the hind-part and the loins are only covered by two fleshy muscles and tendinous extensions of two other muscles, points of note in the use of unpadded saddles.*

The withers are provided only with two deeper layers of muscles and with the superficial *m. trapezius*, which lifts the shoulder blade. The deeper muscles on the abdomen, referred to above, are covered by several pectoral muscles, which have the function to pull the trunk forward during progression.

Both the muscles of the shoulder and of the croup have more or less relationship with those of the back in the various movements. The *psaos* and *glutacus* muscles of the croup act as a sort of a steering gear to the back, the first springing directly from the lumbar vertebrae, the latter from the long muscle of the back. But we must confine ourselves to the back as under consideration.

## FATIGUE OF MUSCLES.

When the muscles are at work during the locomotion of the horse they are at first energetic, but become gradually fatigued with the continuance of work. Undue wear and tear of muscles is largely the result of outside difficulties, such as rough roads, climbing hills, great heat, fast gaits, restless riders who punish the horse by bit and spur, and, not the least, ill-fitting and heavily loaded saddles.

The fatigue of the muscles of the back, particularly, is not

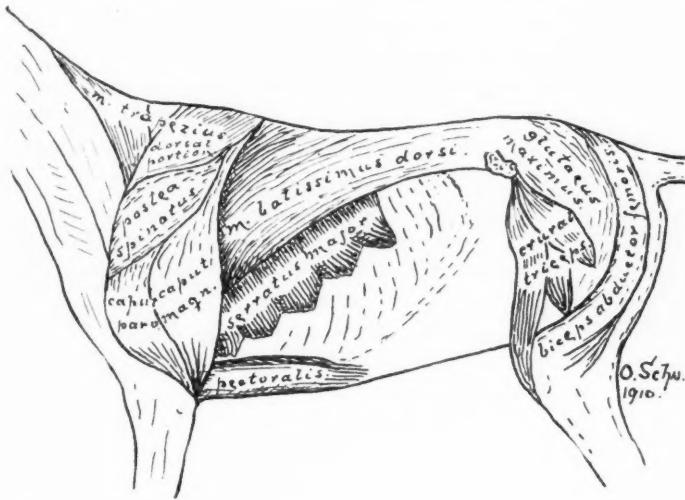


Fig. V. Upper layer of muscles of trunk.

yet fully appreciated. A horse is called "leg-weary" when he is often really "back-weary." The value of the periodical halt during march lies not so much in the cessation of work as in unloading of the weight of the rider. "Leg-weary" or "played-out" horses show often instant relief when unburdened of their packed saddles and being led, when they briskly march on. If a "leg-weary" horse is allowed to roll and shake his back he recovers from fatigue as by magic from the simple relief to the muscles of his back.

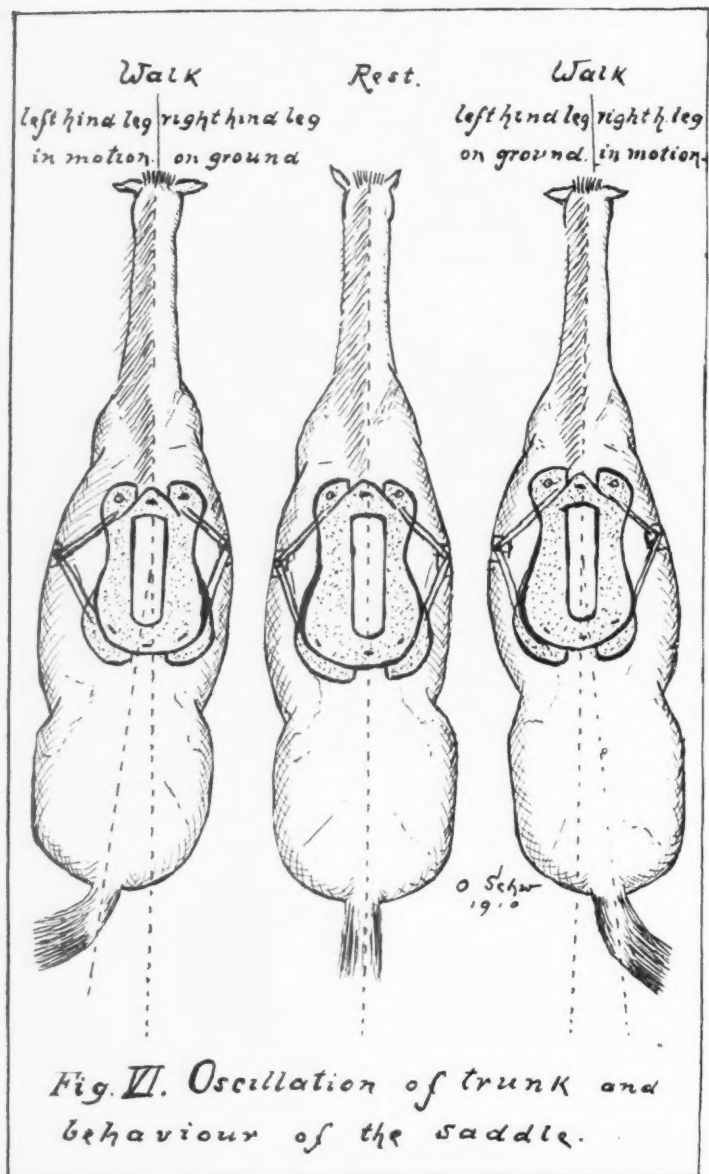
Yet it is only just to the much criticised rider and saddle to remember that the cause of early and untimely fatigue is often within the horse himself. A lame horse fatigues rapidly on the march because he overtaxes the strength of the three legs, and is straining the muscles of the back. Horses with "high action," as also too short-gaited and well-rounded horses, which please the inexperienced eye and convey an erroneous idea of vigor and strength, tire out sooner, because of lost motion from undue muscular wear and from pounding the ground with the hoofs, than low and smooth steppers, which preserve their strength. Untrained horses, often in prime condition so far as appearance indicates, but with soft muscles and unsteady for economical body work, do not only soon fatigue, but are liable to break down. Much depends here upon the proper circulation of the blood, which replenishes the muscles with energy, and upon unrestricted respiration. Both prevent the accumulation of sarcolactic acid in the tissue of the muscles, which is chemically the cause of fatigue. The lungs must be taught to stand strain, and the heart more so; really, "wind" is begotten of a large and well-working heart. Moreover, horses must first learn how to carry the neck and back straight, to move the legs regular like the pendulum of a clock (if they are built right), and to avoid the small obstacles of the ground. Good marchers have common sense; at least, they make proper use of the sense of equilibrium and the various instinct movements, all of which are physiological attributes. For finer points on this subject the analysis of animal locomotion teaches much that cannot be gone into here.

#### OSCILLATION OF THE SPINE.

One phase of this subject, however, that should not be left untouched here is the "swinging of the back" in progressive movements. It is natural to all horses, both in the lateral and diagonal gaits, but is greatly less so in some horses than in others. It is partly due to the fact that the body and the feet do not advance with the same velocity, because the center of gravity tends to move in a uniform manner; partly due to the greater or less broadness of the hip in comparison with the narrowness of the shoulder (Fig. II), from which the plane of movement

of the hind legs is not parallel to the axis of the body. It must not be confounded with the "rocking" or "rolling" in the walk and trot, as frequently observed in cavalry horses with a broad chest or croup, sometimes in the front alone or in the hind-quarters. This rocking consists in balancing the body by a lateral displacement of the center of gravity due to the excessive width of the base of support. But the natural oscillation of the spine during movements is not very visible on ordinary observation. It can be best felt by riding bareback, and its reflection can be seen by the motions of the pack. The packed *aparejo* shows it rather in an exaggerated form, because the high, dead weight swings by itself, but the impulse to it is given by the spine. Some horses and mules, particularly those with a long back, bring their load forward in an undulating motion from rear to front, but all show an aberration of the spine from the median line of the body. A whole lesson in hippology can be learned here by trying under saddle all the horses of one troop only, which test is also bound to awaken full sympathy with some men who are looked upon as poor riders.

The writer has experimented with simple means to demonstrate these oscillations of the spine. One simple test is to mark the median line (spine) of the back with white chalk, put the McClellan saddle on the bare back, connect the pommel and cantle with a string, to the center of which is fastened a light white stick long enough to reach from the withers to the high point of the croup. If the horse is led underneath a high porch or low stable roof for observation, the swinging of the spine can be demonstrated to a class of students. In some horses this test is not convincing, owing to errors of this primitive method. For individual study it is most instructive to tie a white string to the saddle of a harness, long enough to take the end into a buggy, holding it horizontal. If a cross-piece of white cotton, marked in inches, is pasted on the high point of the croup, the oscillation of the back can be approximately measured, and was found to be between one inch to more than three inches in different horses. The swinging of the trunk is accompanied by swinging of the tail. (See Fig. VI.)



It is evident that this swinging of the spine must have a direct bearing upon the behavior of the saddle. To prove this it is only necessary to saddle a horse with the McClellan saddle without blanket and have him led under a high point for observation, when the vacillation of the saddle becomes strikingly apparent. This is less visible with a blanket and rider mounted, undoubtedly more from obscured observation than from fact.

No less noteworthy is the change in the natural contour of the back during the extended gaits, as seen in profile in instantaneous photographs of unsaddled horses. At the trot the neck and withers are kept in an even position, while the back and croup are alternately elongated towards a plane, from whence they change in form to that approaching a sway-back with a high-pointed croup.

At the gallop the neck is alternately raised and lowered, the back and loins are periodically straightening or sinking, and the croup changing from a horizontal to a greatly sloping form.

The most violent changes in the form of the back are naturally observed during the jump, where at the moment of passing the obstacle the whole back and croup are strikingly horizontal, while the same horse, at rest, has a high-pointed and well-sloping croup.

Again, it must be evident that such great changes in the form of the back during trot and gallop, unperceived by the human eye as they are, must, nevertheless, have a direct bearing upon the behavior of the saddle during these movements, particularly under a heavy pack.

#### WEIGHT, WORK, SPEED, ENDURANCE.

Around the question, what weight the cavalry horse can effectually carry, centers much that has made or unmade mounted commands in war, according to history. It has many times been gone into, but has seldom been fully answered anywhere and cannot be until it is treated from the scientific standpoint and not alone from the practical. If the question were only what total weight an individual horse can carry at the walk (or Western jig) for a certain distance and over good and known roads, this could be easily ascertained. Some records of heavy loads car-

ried are on hand. Smith (\*) cites that horses have been known to carry 650-750 pounds for seven or eight miles without resting, and that one horse at Stowbridge carried 1,232 pounds of iron for eight miles. This, however, is only interesting so far as to know what dead weight one horse can carry under exceptional circumstances. Further than that, if our horse would be only a subject for transporting the rider and pack at a defined gait and daily distance, and some assert he can do no more, then the limit of weight could still be correctly established.

But we all fully realize that cavalry no longer marches at the walk alone, and that the military evolutions at our maneuvers and in war are now performed at the fast gaits of trot and gallop by all sorts of horses, fit and unfit, and over all kinds of ground. True to our spirit, we are already overdoing our horses to excel our European prototypes, but in order to continue this unpunished we shall have to look for more real saddle horses, adapt a more elastic saddle, and learn how to apply a detailed and rational care of horses during campaign. Thus the question is no longer what it used to be and will have to be so formulated as to broadly ask: What average weight can our average cavalry horse carry, at what speed can he do so, and how long can he endure it?

We must revert here a little to answer briefly the several points of this question. A horse that carries a rider and pack on the march moves weight, or, in the physiological sense, it *performs work*. This work is mechanical and is the product of three quantities: Effort (or force), velocity (or speed), and continuance (or endurance). The effort exerted during work under the saddle varies with the velocity. Taking Weber's calculations as a basis, Smith finds that, at three miles per hour on level ground, one-twentieth of the weight carried is the force which moves it along; one-twentieth is, therefore, the co-efficient of resistance. Taking, as an example, a dragoon in marching

\*Colonel F. Smith, Army Veterinary Staff, Veterinary Physiology, London, 1908. Also: Goubeaux et Barrier, L'exterieur du Cheval, Paris, 1904, and Dr. Goldbeck, Stabsveterinar, Die Gesundheitspflege des Militaerperdes, Berlin, 1902.

From these three books are cited most of the statistical and experimental data given in this chapter.

order, man and kit complete weighing 250 pounds, the force a horse has to exert to carry him at the different velocities given is as follows:

Miles per hour.	Co-efficient.	To carry this weight the horse has to exert a force equal to:
5	1/14	18 pounds
6	1/12	21 pounds
7	1/10.7	23.3 pounds
8	1/9.6	26 pounds
9	1/8.6	29 pounds
10	1/7.9	31 pounds

But the horse has to carry his own weight in addition to that of the rider and pack, and it was found that the exact amount of force which he has to exert at five miles an hour, his own weight being 1,000 pounds, is as follows:

To carry the rider the horse exerts a force of . . . . . 18 lbs.

To carry itself the horse exerts a force of . . . . . 72 lbs.

Total . . . . . 90 lbs.

so that every foot of ground over which the horse passes to perform the work of moving five miles an hour on level ground costs him ninety pounds of muscular effort.

Smith comes to the conclusion, after experiments at Aldershot, that the most proportionate weight a cavalry horse can carry is one-fifth of his body weight, and Goldbeck states that the weight the average horse can safely carry is forty-five per cent of his body weight at a walk, and thirty per cent at the trot and gallop. He adds that the German cavalry horses carry in average between twenty-five per cent to thirty per cent of their body weight.

The records of speed of horses, both in trot and gallop, are too well known to be considered here, particularly as they are mostly track records of individual horses, made on prepared ground and at limited distances. They are not applicable for bodies of cavalry, because individual speed at short distances is seldom called for in the military service.

Of greater value are the "long distance rides," records of which are abundant. Youatt\* gives a long list, going as far back as 1793. The earlier rides of this kind were mostly made on Arab horses and English thoroughbreds, and seem to have been the fashion of the times. Noteworthy is the feat of Captain Horne of the Madras Horse Artillery, who rode in 1838 an Arab, named "Jumping Jenny," 100 miles daily for eight days, and this in the hot season; the captain succumbed to dysentery, but the horse survived. During the year following, similar feats were attempted, but not equaled, and these rides did not attract the attention of cavalry circles due them. In June, 1898, however, the Frenchman Cottu startled experts by his famous ride from Paris to Vienna on an Anglo-Norman horse, partly through mountainous country, during which he fed his horse on a daily ration of 24 litres of oats mixed with 15 litres of milk, an entirely new venture. It was not long before this record was duplicated by Captain Spielberg of the German army, riding a Trakehner mount from Saarbrücken to Rome in 12 days, taking the Alps as an obstacle and feeding his horse on the field ration only, in emergency using a cake of pressed oats and molasses. These rides were no longer trials of long-distance speed, but became "endurance rides" performed at middle-speed at a great distance. Of these quite a number have since been undertaken by squads of officers and lately by bodies of cavalry. They have led to valuable records for the use of cavalry and have demonstrated that properly bred horses, with lighter equipment and under intelligent care, can show almost limitless endurance. Captain Spielberg himself put it this way: "A further increase in the endurance of our horses is not to be thought of in the field of equitation, but in that of horse hygiene" (equipment and care). This point has been gradually acknowledged, and no endurance rides are now considered successful unless the horses ridden come out of it in a serviceable condition, including absence of sore backs, as attested to by veterinary examination.

Of course, many of the facts brought out in these rides were not exactly new, but they were substantiated and became renewed knowledge in a more detailed and scientific form. To

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\*Youatt, *The History of the Thoroughbred Horse*; London.

be brief, it has been found that only strictly healthy horses can be used in trials of endurance; that previous overtraining is to be avoided, but that horses must be of hardened muscle and of good condition and spirit; that nutritious, easily digestible, unbulky food, given at intervals of 5 to 6 hours, prevents disease of the digestive tract and keeps the horse in continued strength; that saddles must be sufficiently springy to lessen the shock of the rider upon the back and legs of horses, and that cinches are best of elastic material, to allow free respiration; that the pack must be of waterproof material, as leather, canvas, wool, etc., absorbs rain and increases the weight of the pack; that light steel shoes are the most durable and comfortable, and that daily washing of the hoofs with water is the simplest and best preservative.

Goubeaux and Barrier give exhaustive statistics showing the limit of power of the horse at the trot and gallop, and their relative effects upon the internal economy of the horse. Here are a few in extract: In marching at the walk and trot at a velocity of 8 kilometers per hour, including halts, if the trot is kept up for more than 2,500 meters, some horses will start to forge, a noise indicative of fatigue, and a sign to resume the walk. Between 28 and up to 50 kilometers two halts should be made, and examination of the horse will show that the respiration has risen to 60 per minute (normal 10 per minute), and it will take five minutes to re-establish normal breathing at a stop and ten minutes during walk. In time of war, the distances so traveled should be:

12 kilometers in 1 hour
22 kilometers in 2 hours
32 kilometers in 3 hours
40 kilometers in 4 hours
45 kilometers in 5 hours
54 kilometers in 6 hours
60 kilometers in 7 hours

Then a rest of 2 to 5 hours should be taken, according to circumstances, when the march can be resumed; the next 60 kilometers should not be completed in less than 10 hours.

If the gallop is used in combination with the other gaits, the distances have to be reduced in proportion to the saving in time. As far as pure gallop is concerned, the following tabulation may

be of interest to the advocates of charges: Horses can start at a charging gallop and travel fast for 1,000 meters. For longer distances, charges can be run only in the following proportion:

For 1,500 meters, 800 at the ordinary gallop, 700 at the charging gallop.

For 2,000 meters, 1,500 at the ordinary gallop, 500 at the charging gallop.

For 2,500 meters, 2,200 at the ordinary gallop, 300 at the charging gallop.

For 3,000 meters, 2,800 at the ordinary gallop, 200 at the charging gallop.

For 3,500 meters, almost the whole distance at the ordinary gallop, the rest charge.

For 5,000 meters, gallop slackened for the whole distance; no charge is possible at the end.

After 1,000 meters of charge a stop should be made; the lungs will be found to be engorged, respiration has attained 74 per minute and the pulse is rapid. From 10 to 20 minutes will be required to re-establish normal respiration in all horses, but in emergency, after 10 minutes' rest or walk, the horses have still enough freedom of respiration to make another charge of 400 to 500 meters. After a gallop of 3,500 meters the muscles are fatigued and the lungs engorged, and a stop is necessary, while at the end of 5,000 meters the maximum power of the horse has been called into activity and the physical effort used has been equal to the work of a whole day at a walk; the respiration is found to be 74-80, pulse very rapid, internal temperature registers a rise of 1 to 2 degrees. Whatever the fatigue, a troop can always continue to march at a walk; 20 minutes after walk, calm of the internal organs is restored.

The writer is in sympathy with those of our officers who believe in the immense power of the gallop of the horse. Those who do not yet acknowledge it should once see, hear and feel the charge of cavalry divisions, when the earth vibrates as by an approaching cyclone, and they will be converted. The above quotations show the limits of the endurance of the horse. No doubt there will be instances in war when they will be over-

stepped, for supreme effort does not fit into tabulation or regulation. As De Brack has said: "A horse that can still serve, must serve." But may we emphasize the other acknowledged fact that judicious use of horses, according to their limits of power and endurance, will preserve a cavalry command to an army when otherwise it might be blighted out of existence? There are historical records both ways, and there is no lack of them in our own army.

RÉSUMÉ OF THE PRINCIPLES FOUND IN THE FOREGOING PAGES.

1. The bony vertebral column is the principal carrier of the skeleton; it is neither straight nor horizontal, but curved.
2. The back of the horse, as spoken of in hippology, consists of the withers, the back proper and the loins. The high spinous processes of the dorsal vertebrae form a sharp ridge on the back of the average horse which cannot bear weight and is easily injured.
3. The first 8 or true ribs run fairly straight downward, are connected and supported from below by the breast bone, and have only limited expansion during respiration; in cross-section they represent an equilateral arch; the last 10 or false ribs are well curved, but have no support from below; in cross-section they represent a semi-circular arch.
4. The trunk of the horse does not form a barrel, but resembles a cone; this anatomical shape causes a problem in saddle construction.
5. The elasticity of the spinal column is limited between neighboring vertebrae, but can be considerable for the whole spine.
6. The stability of the spinal column depends upon the strong or weak construction of the vertebrae and upon its direction, normally arched.
7. Weight can be borne on a comparatively small space of the back; the loins are anatomically unfitted to bear weight.
8. The movement of the lumbar vertebrae is restricted, but the last two form joints with the pelvis, which explains flexion at that point.

9. The fore-part of the back is covered by five fleshy muscles, while the hind-part and the loins are only covered by two fleshy muscles and tendinous extensions of two other muscles.
10. The three strongest muscles of the back, combined, act as extensors of the spine and raise the trunk in gallop and jumping; for these forced movements, therefore, saddles must be so constructed and secured as to permit of freedom of muscular action.
11. During the function of the muscles laws of physics are applied (lever-action), but they work differently from ordinary mechanics because the horse is an organized, animated machine, producing intelligent force.
12. Early fatigue of horses is the result of unproportionate weight or weight uncomfortably placed. "Leg-weary" horses are often really "back-weary."
13. Some horses are unfitted by conformation, disposition or lack of training to carry packed saddles on the march.
14. The swinging of the trunk of the horse during walk and trot is due to a natural oscillation of the spine, and is more or less reflected by the motion of the saddle and this in proportion as the cinch is faultily placed.
15. In the walk the horse can carry almost its own weight for short distances; for cavalry marches in walk, trot and gallop, one-fifth of the body weight of the horse is the most proportionate weight that can be carried.
16. Experimental endurance rides, at middle speed but for long distances, have led to valuable observations and statistics on the capacity of the horse at the different gaits, and have resulted in the improvement of horse equipments and horse hygiene for field service.

#### THE FORM AND USE OF THE SADDLE.

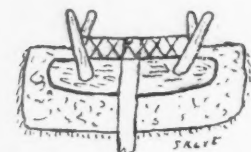
A critical examination of our present saddles cannot well be fair and of comparative value, unless their historic origin and development are considered. Historians state that the saddles of today originated from two ancient sources, quite unlike in idea of construction. The Moorish saddle, which is the more

ancient type, is said to constitute a development of the pack-tree of remote times for carrying burdens on ponies and donkeys. It is still seen today in Oriental countries. It is characterized by the combination of two wooden side-bars with sticks of wood crossing each other above the back in front and rear, tied together and connected by strips of rawhide. Perhaps, very early, a cushion for a seat was spread over this contrivance, stirrups were attached, the whole girthed by a surcingle, and a crude riding saddle came into existence. Being an invention of a hot climate, it left the back of the animal free for the circulation of air and raised the rider considerably above the horse's back, a practical seat for mounted combat. This saddle has survived in a primitive form among mounted tribes of Asia. By the conquering Huns it was brought into Europe, and in a modified and greatly improved form has survived and has long been known as the Hungarian saddle, which until recently, was used by all *light* cavalrys of Europe. The Spanish (Mexican) saddle, our stock saddle, and the McClellan, can be traced to the Moorish saddle.

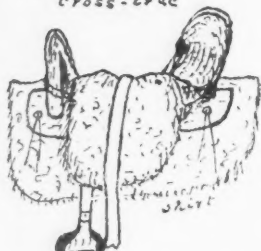
The other type of ancient saddle, variously termed the Gallic or Teutonic, has no clear history. Some authorities consider it the offspring of the thick quilts used by the Greek and Roman cavalry, while others speak of it as an original invention of the colder climate of ancient France or Germany. Caesar alludes to it. In its oldest form it consisted of a strong wooden front arch and a weaker hind arch, connected by two pieces of springy wood on both sides of the back, all heavily padded and the whole covered by a *flat cushion* as a seat. It was necessarily of clumsy appearance, and attained great weight and formidable appearance in the Middle Ages when the Mounted Knights were actually propped up in the saddle and, standing in the stirrups, charged with the lance. With the invention of the firearms, these saddles became smaller and lighter, and so modified were used by the cavalrys in the Thirty Years War, by the *heavy* cavalrys of Frederick the Great and Napoleon, and almost up to date by the Cuirassiers of France, Germany, Austria, Russia and Sweden. The light and graceful English saddle of today is the most perfect development of this ancient flat type of saddle.

The wonderful strides made in the improvements of modern saddles are largely due to military experience in war, and to the

*The Moorish type, high*

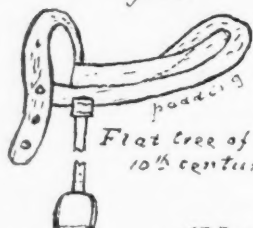


*The saw-buck or cross-tree*

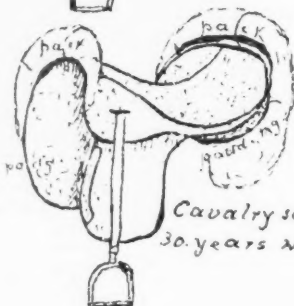


*The Moorish saddle*

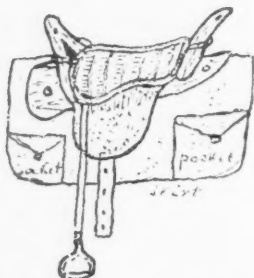
*The Gallic-Roman type, flat.*



*Flat tree of 10th century.*



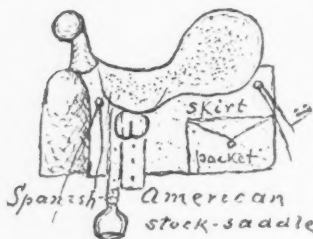
*Cavalry saddle, 30 years war*



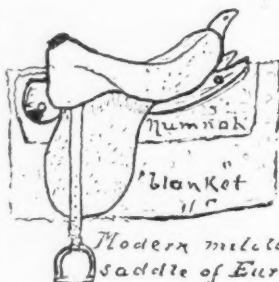
*The Hungarian saddle*



*The modern English saddle*



*Spanish American stock-saddle*



*Modern military saddle of Europe  
O. Schir 1910*

*Fig VIII. Historical development of saddles*

masterly producing machinery. In the museums of Europe one can see all the different types of historic saddles briefly mentioned above and many others, and in comparing them by periods of time, constant improvement can readily be recognized. Yet, anything like perfection in the construction of military saddles was not reached until after the experiences of the War of 1870-1871, up to and including the Boer War, which set experts to studying and experimenting with newly constructed saddles according to our better scientific knowledge of the day.

It cannot be said that the principal armies of Europe use today *one* type of saddle, but all are more or less similar, and appear to be a compromise between the high Hungarian saddle and the old, flat saddle, embodying the good features of both types as far as they can be combined.

American critics of these modern European saddles pronounce them as too complicated and lacking of durability, while our European friends return the compliment by saying that we have no saddles, but ride on a tree. Indeed, the difference in construction and general makeup of these new European saddles and our own McClellan is so great, that one may well hesitate to recommend how the better features of one type may be practically applied to the other. Perhaps our European friends have a little the better of us, as they claim that their saddles are used a great deal harder than ours, with less injuries to the back and legs of horses, and that their saddle construction is based on the principles of applied science.

There is no secret about these principles, if we wish to know them, as they can be found in many foreign military textbooks and regulations. Some of them we know ourselves quite well, but in several instances we have not been consistent enough to put them into actual application. As we have a Cavalry Equipment Board now meeting, it seems timely to recapitulate the maxims on saddle-construction and saddle-fitting, as laid down by acknowledged authorities on the subject, in order that we may better understand and appreciate the changes that may be the outcome of the deliberations and experiments of the experts constituting this board.

## ESSENTIAL POINTS OF SADDLE FITTING.

*British Maxims*.\*

- 1st—The withers must not be pinched or pressed upon.
- 2nd—The central line of the back must have no pressure imposed upon it.
- 3rd—The shoulder-blades must have free and uncontrolled movement.
- 4th—The loins are not intended to carry weight.
- 5th—The weight must be imposed upon the ribs through the medium of the muscles covering them.
- 6th—The weight must be evenly distributed over a surface which extends from the play of the shoulders to the l. t rib.

*German Maxims*.†

- 1st—A military saddle must conform to the anatomical outlines of the back of the horse.
- 2nd—The saddle-rest extends from the withers to the loins, and no further.
- 3rd—The ribs, covered by muscles, fascia and skin, form the foundation for the bars to rest on. The spinous crest of the back must be left free of friction and weight.
- 4th—The seat of the saddle, while giving security to the rider, must be gently elastic.
- 5th—The springy hollow formed by the cartilage of the breast-bone (girth-place) is the natural rest for the cinch.
- 6th—Remounts must have normal backs as well as normal hoofs.

*French Maxims*.‡

- 1st—The carrying surface of the horse's back is limited to 11-18 dorsal vertebrae; no weight must be distributed over the loins or the downward curvature of the ribs.
- 2nd—The normal movement of shoulder and loins must not be impeded by the saddle or pack; the padding of bars facilitates the movements of the back.

\*Animal Management. Prepared in the Veterinary Department for General Staff, War Office, London; Harrison & Sons, 1903.

†Goldbeck.

‡Chardin, Hygiene du Cheval de Guerre. Paris, 1905.

- 3rd—The seat of the saddle must be slightly elastic to lessen the shock of the rider upon the back and legs of the horse during trot and gallop.
- 4th—Too long side-bars receive muscular action and cause injurious friction upon the loins.
- 5th—The girth is best slightly elastic.
- 6th—The shape of the horse's back has much to do with the saddle remaining in proper position.

*American Maxims:*

*Major McCormick, Journal U. S. Cavalry Association, July 1904.*

The ideal cavalry saddle would be one to give the greatest comfort to the horse in carrying the unavoidable great weight, the greatest comfort to the rider, and be of sufficient strength and durability to prevent frequent renewal. . . . . (It must have) sufficient bearing surface and be so shaped as to properly distribute the imposed weight of saddle, pack and rider over those portions of the horse's back which nature has prepared for carrying loads. . . . . Backs of horses vary so much that no positive rule can be laid down. . . . . for a good or bad shape of the bearing surface of the tree.

*Major General W. H. Carter:*

The following rules should guide in the selection and arrangement of saddles:

- First: Each horse should have a saddle fitted to his back when in medium condition, the upper surface of a size to accommodate the rider.
- Second: The cinch should be attached opposite the center of the bearing surface of the saddle.
- Third: The stirrups should be attached slightly in front of the center, so as to be under the seat of the rider and maintain such equilibrium as will prevent one part of the saddle pressing more than another on the horse's back.
- Fourth: The pack should be reduced to the lowest limit consistent with efficient service, and be so adjusted as to preserve, as far as possible, the equilibrium of the horse and

rider and to prevent one part of the back from being saved up at the expense of other parts.

Fifth: The center of the saddle should be placed on the back over the center of motion of the horse.

#### CRITICAL EXAMINATION OF THE PARTS OF OUR SADDLES.

With the above maxims of saddle-construction and saddle-fitting as a guide, let us proceed to examine how far our army saddle complies, or does not comply, with the requirements of a modern military saddle.

#### *The McClellan Saddle.*

*The pommel* of this saddle clears the withers of the majority of our horses, but there are in each troop horses with exceptionally high withers, either from natural conformation or by wasting of muscles from old age or hard usage. This latter class of horses may not be troubled by the pommel during garrison service when they are in good condition, but after marching a week or more the whole saddle fits lower than formerly and the pommel commences to press on the top of the withers. Double folding of the blanket, no matter how ingeniously arranged, gives only temporary relief and has other injuries in its train. Another and more serious and frequent injury inflicted by the pommel is the result of the pinching upon the sides of the withers, in turn resulting from the triangular ascent of the branches of the pommel. This faulty shape is the more censurable, as it injures horses with perfectly normal withers and generally well adapted for cavalry purposes. The pressure on top of the withers and the pinching of the sides, singly or both together, frequently develop into "fistulous withers," one of the worst injuries to deal with. *The pommel is, therefore, both too low and too narrow for general use and should be constructed higher and of a semi-circular form.*

*The cantle.* There is no injury upon the horse's back that is directly traceable to the cantle, but displacements of the rear pack buckled to the cantle are of ordinary occurrence, and by friction they cause sores that are annoying enough on the march. It is doubtful whether the raising of the central point of the cantle would alone in itself prevent these injuries; in foreign armies it

is higher in conjunction with elongated side-bars on which the pack rests.

*The seat of the saddle.* One of the inconsistencies between theory and practice in the construction of our army saddle can be found in the uncovered aperture of the side-bars, which forms a part of the seat of the saddle, exposing the ridge of the back of some horses to injury. From time immemorial this part has been carefully protected, not from mere custom or blind imitation, but from never ceasing untoward experience. Nature has left this part of the horse's back as delicate as the withers, and in addition it is a great deal more flexible and, therefore, more susceptible to injury.

Several modern authorities have been quoted as specifically upholding this old maxim and our own General Carter repeats it in his text book by stating: "The strip lying over the horse's backbone should remain altogether out of contact." Notwithstanding this well founded rule, we put the rider down into this open and divided seat, who fills it out by two-thirds of its space, completely covering the cantle and most of the side-bars and their aperture. Little harm is done hereby to those of our horses that have a round back, except by unnecessarily heating it, because such horses have very low spinous processes and some of their kind even show the depressed central line of the back of the draft horse. But the horses approaching nearer to a saddle type, be they troop horses or private mounts of officers, are of a build more lean and flat because they are of bone and muscle first and of fat only next. Their back has a normally high ridge (See Fig. I), which protrudes more or less through this aperture of the side-bars, exposing it to injuries in several ways. Firstly, the surcingle buckled tightly by our men, in spite of the everlasting warning of our officers, produces a gall right in the lowest part of the seat of the saddle, whereto it naturally slips. Being an injury born of ignorance and carelessness and, therefore, preventable, its true cause is never admitted, but is generally ascribed to the rolling of the horse upon a rock or to a bite of another horse. Anatomical evidence is against this supposition, as these surcingle galls occur with unerring regularity in the lowest part of the back, which is protected by the higher withers from this kind of injuries. Secondly, the blanket works up into the aper-

ture, folding itself, and the movements of the rider in trot and gallop produce sores from friction that generally end in the permanent enlargement of the heads of the spinous processes, an unsightly blemish if nothing else. There are officers who condemn this class of horses as unfit for the saddle, thereby testifying unconsciously how deep rooted the prejudice in favor of the McClellan saddle has become when it prevents them by eyesight or riding from detecting the true cause of the trouble in our saddle instead of in the horse. Lastly, there are *many men* in the cavalry so narrowly built in the pelvis, that if they sit straight in the McClellan saddle, the ends of *os ischii* (ordinary name unknown) directly rub upon the upper edges of the side-bars. These edges are quite sharp in new saddles and produce pain to the superficial nerves or direct sores from pressure little known, because no cavalryman of pride will ever admit that he is sore from riding. To illustrate this point, the writer once witnessed a soldier, so injured, pleading with the surgeon not to call it saddle-sore, but begged: "Please put it down in the book in some Latin name, Sir." The good natured surgeon smiled and found some diagnostic term that was Greek to the barrack-room critics. It is clear that men so built can only sit straight in our saddles by continued will power, but as soon as this relaxes or discomfort or pain sets in, they instinctively shift in the seat, from one side to the other to prevent injury to themselves, but giving it to the horse instead. Cause and effect are here so plain, that no forcible argument is needed to recommend that this aperture of the side-bars be covered by a leather seat sufficiently stretched to clear the ridge of the horse's back and at the same time to provide a seat that is more humane to our men so built, even if they were only in the minority, which perhaps they are not.

In the "old army," which spent most of its days in the field, many cavalrymen were the proud possessors of a bear-skin, buffalo-skin or at least a sheep-skin, which covered this aperture of the saddle in correction of its defect; the American stock-saddle has a wholly or partially covered seat, and all foreign military saddles have either a stretched leather seat or cushion. It is realized that by providing such a rational seat for our saddle we would lose a part of the simplicity of the McClellan saddle, so highly prized, but this would be more than counterbalanced

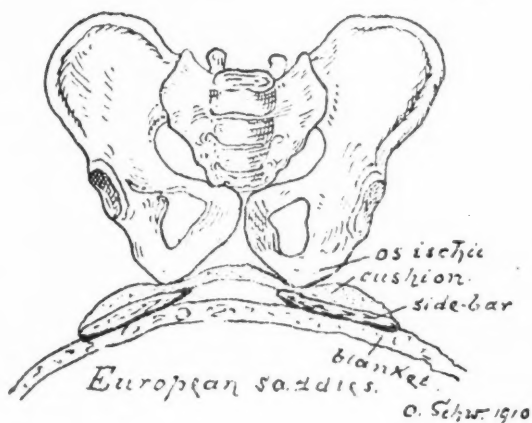
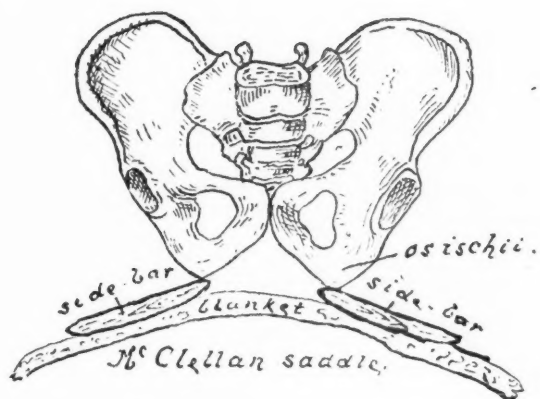


Fig. IX. The position of os ischii on the side-bars

by the prevention of the unavoidable injuries to horses and men traceable to the several sources mentioned above.

*The side-bars.* Much of the criticism of our saddle is centered about the side-bars. Our officers have variously pronounced them to be too short and recommend that they be lengthened four inches; that they are too broad or too narrow and should be made adjustable (Wint saddle); that new measurements and plaster casts should be taken of the backs of our present horses, as they have evidently changed in conformation since the Civil War; that the skirt of the stock saddle be adapted for our side-bars to give a larger supporting surface and soft padding, etc. All these recommendations go to show that the side-bars of our saddle are considered as quite defective. It is unquestionably true that they are hard, unyielding and sharply bordered so that they cannot give to the form of the horse's back nor to his movements, nor can the horse accommodate himself or assume a position that lessens the discomfort, if not pain, although he often tries to do so by lowering his neck or carrying it sideways, as seen on long marches. Moreover, the ends of the side-bars produce our "regulation sitfasts," that can be treated only by operation, and bill so many horses for the sick list well into the winter after the summer marches or maneuvers. Finally, a comparison with foreign military saddles shows that these sitfasts produced by the front ends and rear of our saddles are practically unknown elsewhere, and that sores are confined in other cavalrys to the middle of the back, as shown by foreign veterinary statistics. Why all this is so, can be fairly demonstrated by carefully lifting the McClellan saddle off the blanket moist from perspiration after hard riding, when the cast of the side-bars appears almost true to form; if then the blanket is carefully removed, the imprint is still perfectly clear on the moist skin of the horse, but *is sharpest defined on the front ends and rear ends of the bars.*

Or to come to the point by stating facts, it is peculiar and pertinent that formerly the front end sitfasts, caused by the weight of the carbine, were mostly confined to the left front side of the back, while almost simultaneously with the change of the rifle to the left side these sitfasts were shifted to the right side. Of course, the rear end sitfasts have remained stationary because our soldiers continue to lean against the high and well rounded

cantle, thereby pressing the rear ends of the side-bars into the back of the horse, helped along by the weight of the rear pack.

The writer would gladly join in the several recommendations for a change in pattern of our side-bars, if he could see ahead a radical cure of the present evils encountered. All shapes of side-bars have their advantages and disadvantages. Our present bars fit the back of round-backed horses, but play havoc with the lean and longer backed. For these, narrower and elongated bars are indicated, but a timely warning must be sounded that they produce the "papulous eczema" by friction of the loins (oscillation of the spine), which is today more dreaded in the Continental armies of Europe than is the sitfast. The problem of a suitable side-bar must revert for its solution to the differences in the anatomical makeup of different horses. The backs of our horses are so unlike in form, presenting as they do all the shades between extreme roundness or narrowness, between the extremes in length or shortness, and additional, more or less indefinable and individual defects or characteristics of conformation, that it must appear well nigh impossible to try to find an *average* shape for a side-bar when there exists no average form of the back of our horses. To quote a verbal verdict of one of our officers: "Our horses range in form all the way from the rhinoceros to the greyhound." In this respect the solution of our saddle problem is more complicated than that of most other armies, and yet some of their authorities emphasize the need of examining the backs of remounts as carefully as their legs and hoofs.

Much relief, perhaps the best relief, from our situation could be expected by the adoption of the skirt of the stock saddle. This is an old contrivance of military saddles of the Hungarian type, although it has been superseded in the foremost European armies by padding of the under surface of the bars or other pads of different pattern. With us, the skirt of the stock saddle is best known and best appreciated because our Western stockmen have never ceased to praise its good points to our officers and men. Of course, the objection to this proposition of additional weight is heard within our ranks, but with a better base to build upon we could quickly reduce weight or entirely abandon weight somewhere else; to start in with, the saddle-bags can be superseded by

pockets in the skirt and the blanket could be abandoned in case of urgency.

Those of our officers who advocate the skirt are perfectly correct when they see in it a larger supporting area for the saddle, and it would in addition facilitate the functions of the muscles of the horse's back, secure play for the oscillation of the spine and prevent tight cinching. That it would do away entirely with sore backs, however, is a false hope, for the writer has often seen large and deep sitfasts on the middle ribs of cowboy horses that were as large as a man's fist, exposing the ribs, the movements of which could be seen in breathing. This skirt would largely prevent the very objectionable sitfasts of the front ends and rear ends of the side-bars, because it is thicker and less elastic than the blanket and stands out in front of the bars of the stock-saddle about two inches and in rear of the bars about four inches. At the same time, it would cause us new troubles in large rib pressures similar to the aparejo, unless modified in form.

No, saddle sores will never be entirely obliterated by any scheme whatever; they were already known before saddles were invented, for Xenophon tells his cavalymen of 2,400 years ago: "The quilt must be of such material and so sewed together as to give the rider a comfortable seat *and not gall the back of the horse.*" Caesar, in his Gallic War, was so much troubled with sore backs of his pack animals and riding horses, that he established "veterinaria," regular veterinary field hospitals. Frederick the Great reprimanded his "veterinary farriers" for the slow cure of sore backs and ordered the use of the hot iron. Napoleon was so agitated about the many and severe sore backs among his mounted contingents, that he added to his staff an "artiste veterinaire" with the rank of adjutant, to report to him daily the condition of the horses. We know today that horses become sore merely from prolonged bareback riding in the riding halls. These remarks are interspersed to encourage our pessimists to face the inevitable sore back of the future, and we may in addition invite their attention to the troubles of others by a comparison with the sore foot of the infantryman, likewise mentioned by Xenophon long before marching shoes were invented.

*The quarter straps and the girth place.* The next inconsistency in the construction of our saddle is found by some alert

officers in the quarter straps as a means of girthing the saddle. There are two theories about the proper location of the girths. One is to buckle a surcingle only over the center of the saddle and perpendicularly downward, which gives the most freedom to the center of motion of the horse and his other natural freedom to the center of motion of the horse and his other natural movements of the back, so well described and advocated in that classical treatise of Major Dwyer on "Seats and Saddles." The other theory sustains the *forward* girth of the English saddle, which fixes the fore part of the saddle on the horse's back and thus allows freedom for the hind part of the back, from which emanate the more disturbing movements. We have accepted neither of these theories in our McClellan saddle.

Perhaps adverse experience in keeping older patterns of saddles securely on the back of the horses before and during the Civil War has led the inventor of the quarter straps to find in them a means to have the "saddle stay on the horse's back." This they do, in so far as they prevent a rolling off of the saddle sideways, which is experienced in padded saddles fastened by one central girth or forward girth only.

The quarter straps do not prevent the mounting of the saddle upon the withers, nor its slipping backwards on those horses so built as to favor the displacement. The only remedy for these troubles imaginable to the soldier is tight cinching, in which he is encouraged by the forcible working of the cinch strap in conjunction with the cinch ring, against which the resisting abdominal muscles of the horse (bloating) are powerless, while in the buckled girth the horse comes out the winner.

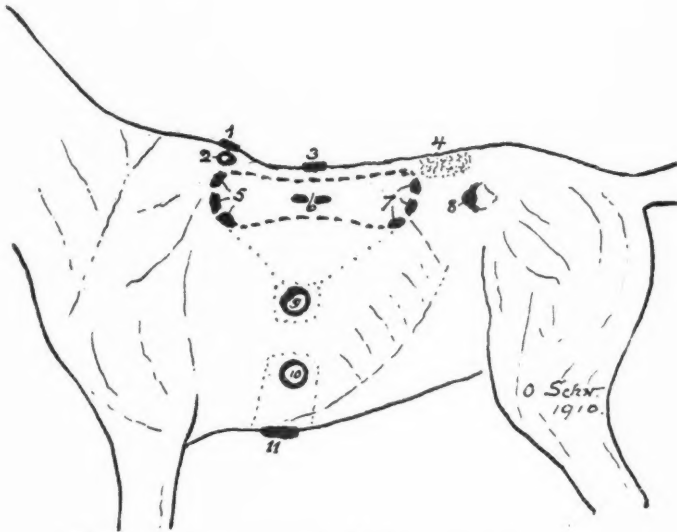
Nor do the quarter straps favor tight cinching alone, but tight saddling generally. They help to bore the front ends and rear ends of the side-bars into the horse's back, and successfully prevent all finer movements of the back, and after a good trot or gallop they interfere grievously with the deepened breathing of the horse.

To sum up, they work as a veritable "straight-jacket," appropriately so termed by Lieutenant Gordon Johnston in the *CAVALRY JOURNAL* of April, 1908. One can only wonder how the horse endures all these grievances inflicted upon him by our saddle. But, he does at least object to them. The bugle call

"boots and saddles" sounds melodious and inviting, but it is quickly followed in the stables by disharmony between horse and man. The blanket and saddle are put on the back without trouble, but the scene changes at once when the cinching commences. One can hear a groan of horse here and there, all are willfully shaking their heads, their eyes are fiery, the ears, laid backwards, and the more resentful among them attempt a grip or two on the human perpetrator, which is quickly responded to by unkind words, if not deeds. There is no peace until the torture of tight cinching is over, the end of which is announced by the horses by snorting with apparent relief. Such stable observations are often valuable indicators for reforms in customs and needed changes in equipment.

The above criticism of faults in the construction of the McClellan saddle, found in the light of modern standards of saddles, and the changed requirements of cavalry riding, should justly be followed by an acknowledgment of its good points. The simplicity and durability of this saddle are far superior to any other military saddle and greatly favor a simple arrangement of the mounted pack as we have it. This fact is easily ascertained by a comparison with foreign military saddles. Besides, if we take into consideration the character of our soldiers, who abhor anything that appears impractical or cumbrous to them, as would most foreign saddles, and their carelessness in handling equipments, our saddle appears to have been evolved to fit their peculiarities, for it calls for no tedious attention to details of adjustment and is practically unbreakable. In this respect it will be difficult to replace our saddle, as it is, by any other pattern known or likely to be devised in a short time.

*The pack.* The arrangement of the pack for field service is a problem to be solved by mounted officers as the proper experts, as it relates to carrying the necessities of the soldier and his arms for warfare. The pack has little relationship to important injuries of the horse, except that its great general weight tires out and early ruins many horses, so that a change to a lighter and simpler pack is ardently hoped by everyone in the mounted service. If the carriage of the rifle is to remain as it is, the writer begs to suggest that experiments be made with one saddle-bag only, to be carried in front and containing the heavier articles, to offset



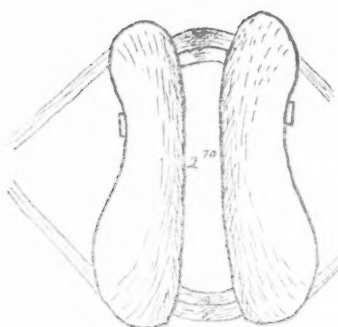
1. Pressure from pommel, Whitman saddle
2. pinching " " " " and McEllan
3. surcingle gall.
4. pustulous eczema by the elongated side-bars  
of European military saddles
5. front-sitfasts from pressure of side-bars
6. centre-sitfasts " " " " "
7. rear-sitfasts " " " " "
8. friction from saddle-bags.
9. quarler-strap ring gall.
10. cinch-ring gall.
11. cinch-gall

Fig. X. Points of common saddle-sores.

the one-sided weight of the rifle. He has tried it on the march by having some farriers and horseshoers carry their tools in this manner, and although it is a well founded dictum not to overburden the forelegs of the horse, it is no worse to have a fore-pack than to overburden the hindquarters. All foreign armies have a fore-pack much heavier than our rifle and saber weigh combined.

*The Whitman saddle*, as furnished by the Ordnance Department, is now quite extensively used by our officers, particularly by those who have become acquainted with the flat English saddle, of which it is an imitation. It is comfortable for the rider after he has learned to ride his horse and more comfortable for the horse *if it fits*. But the very low and triangular pommel must and does press and pinch the withers of every horse that has withers, a fact which has given many officers and veterinarians no end of trouble by annoying injuries in spite of never ceasing attempts to counterbalance this fault by padding and elevating the saddle and by all other kinds of schemes on the march. Lean horses are likewise injured on the sides of the spinous processes of the back by the extremely narrow slit of the side-bars, which is only  $1\frac{1}{2}$  inches in width, while in the McClellan it measures  $2\frac{3}{4}$  inches, and in other saddles still more. This narrow slit is, however, a great relief to the rider with a narrow pelvis. If, further, the extremely high-joining quarter straps could be replaced by a more rational front girth, and the other faults corrected, the Whitman saddle has all promise to become *the* officer's saddle of our army.

*The stock saddle* is only used by packers and teamsters of the Quartermaster's Department, but its adoption for the cavalry service has been periodically recommended, and many officers of the "older army" obstinately refused to use any other saddle in field service. But these days have passed by and few of our younger officers today can see in the stock saddle a military saddle, no matter how altered. However, the good features of the stock saddle are several and worthy of careful consideration. The skirt removes the problem of the shape of the side-bars, for any kind of side-bar will fit with it, as seen by the widely different patterns used in this saddle; it lessens the danger of sore



2 7/8 i  
Cross-section of side-bars,  
width, 2 7/8 i. apart and approx-  
imately horizontal.

Under surface of McClellan saddle, showing  
short and wide side-bars, fitted for round-  
backed horses. Quarter-straps on both ends



4 i  
Cross-section of narrow  
side-bars, 4 i. apart and  
with vertical inclination.

Under surface of British army saddle with  
narrow and elongated bars, suitable for  
lean and slanting backs. Quarter-straps  
front and center.

Fig. XI. Comparative forms of the side-bars  
of the McClellan and British saddles.

backs and is real comfort to the back of the horse, even in violent movements. The pommel is unusually heavy and high because adapted for roping cattle, which is no longer a military occupation, but its general form is nevertheless ideal for the comfort and safety of the withers. The seat of this saddle is either wholly covered or in part, thus protecting the ridge of the horse's back from injury, but is now made so hard, by inserting a metal plate, that the would-be cowboy of today habitually rides sideways, a fad imitated by our soldiers on their Sunday pass rides when out of the eyes of the garrison.

The cinch is located well forward and comes to rest on the xiphoid cartilage, as it should; a second or hind-cinch has been invented since the extinction of the fleet, often blooded, little cowboy pony, because the clumsy, round-backed and round-bellied cow-horse of today needs extra girthing if roughly used at work for which he is not adapted by nature.

We shall refrain from discussing the construction of foreign military saddles for the sake of brevity and because they are the result of experiences in highly civilized central European wars, in which we are not likely to share, as ordinary human foresight can tell. Whatever alterations may be made in our army saddle, they will naturally be along an attempt to combine the best features of the McClellan saddle, the Whitman saddle, and the stock saddle. These three are characteristic American products, evolved on our soil by the peculiar needs of the past and they are thus endeared to our army by popular prejudice and patriotic pride, both of which are bound to counteract against the introduction of foreign ideas of saddle construction.

## TRAINING THE POLO PONY.

By VETERINARIAN G. E. GRIFFIN, THIRD FIELD ARTILLERY.

THERE is such a vast difference between the good polo pony and the indifferent one that even the most casual observer of a polo game cannot fail to observe it.

Unthinking onlookers, or those whose knowledge of equine lore is but superficial, are frequently inclined to place the blame for poor maneuvering on the rider, where it seldom belongs, forgetting for the moment that indifferent riders are never seen on the polo field; principally because it is the last place a poor horseman would select to make an exhibition of himself when he can have free access to the back roads and more or less secluded places of the neighborhood.

As a rule, polo players are men of temperate habits, good morals and even tempers; but place the best of them on a spoiled or untrained pony, induce him to play one or two periods while thus mounted, and at the end of that time I will, if necessary, be in a position to present you to a peevish, stammering, nervous person who has suddenly acquired a fluency in profane expletive supposed to belong only to a muleteer. The responsibility for this change in the player can readily be traced to the untrained pony.

Place the same man on a well trained animal immediately and he becomes normal at once, and although his side may be defeated sixteen to minus two, he will view the score with a smile, congratulate his opponents, and will inform you he has just had the time of his life on that little brown pony with the N bar 6 brand; and will probably inquire in the course of the evening if you desire to dispose of him.

You who play the game know what I mean; while those of you who do not play but know what a trained horse means to a good rider will readily understand.

The training of the polo pony has, beyond a certain point, little connection with the equitation of the schools; such as the one at Fort Riley, which, by the way, is second to none. The schools, as a rule, are not eager to encourage the playing of polo among their pupils, the main reason being that the game takes the attention away from the hands, legs, seat and mount to such an extent that it produces a more or less pernicious effect on the work in the riding hall, where the pupil meets with problems that never present themselves in the game.

It does not necessarily follow that because one is an excellent polo player he is a good horseman, as viewed from the standpoint of the schools. In fact, I am convinced that polo playing alone is not good practice for acquiring the hands, legs and seat of the school expert, and the finished horseman; but I know it is a practice that develops quickness of decision and a fearlessness and self-reliance that is not without value to a military man.

He who is fortunate enough to be a graduate of the Fort Riley School of Equitation before taking up polo is to be envied, especially if he possesses what is known among horsemen as "horse sense."

The task of bringing the pony to perfection entails the expenditure of an amount of time, labor and patience, not to mention skill, which will not be credited except by those who have been actually through it. And after all it is problematical whether the pony will eventually prove satisfactory; for not all of us possess the God-given gift of horse training, and few of us the temperament, hands, legs and seat and instincts of the horseman.

When choosing a pony for training always remember that temperament should be the primary and conformation the secondary consideration. Never purchase a pony for polo solely on account of perfection of points, for with it, only too often, goes a fault of temperament. The prospective polo pony should be ridden and have his temper tried to the limit before the purchase is made. If it (the temper) is not a decent one, do not buy him for the game, no matter how symmetrical the conformation may be.

What is meant by bad temper is vicious kicking, refusing to stop, poking out the nose and walking away in a headstrong

manner, refusing to back, rearing, laying back the ears, grinding the teeth, and pawing with the fore feet when required to stand in place, etc., etc. Nervousness may be overcome by judicious handling. Bad temper will probably be intensified during training.

As to conformation—a first-class pony may be pleasing to the eye or he may not. He may appear out of proportion for that matter and still play the game. I agree fully with Lieutenant Colonel Charles G. Treat of the Field Artillery, who says: "They play the game in all shapes if they have the speed and temperament and are up to one's weight."

There are many splendid polo ponies of poor conformation and good temper, but there are more so-called polo ponies with faultless conformation and the temperament of a stubborn mule.

When it becomes necessary to make a choice between conformation and temperament remember the latter is indispensable on the field. Disregard of this will cause disappointment and regret.

Of course it is understood that selection will be made from "broken" ponies. He who invests in an unriden one is taking many chances.

Having satisfied yourself as to age, soundness and condition of the heart and having made your purchase, your first object should be to give your pony a good mouth, by no means a trifling undertaking. Bad mouths and, in many cases, bad tempers, are the result of placing the pony in the game before he is ready.

The keel-hauling an untrained pony receives in his first game ruins his mouth for many months, and the bullying necessary to get any sort of a game out of him utterly sours him and gives him such a bad impression of the field and everything in connection therewith that he rarely forgets it.

I am an advocate of the snaffle bit for training, and for riding the pony in the game, and I believe that if the training is properly carried out with this bit the use of the curb will not be necessary except in rare instances.

The first step with the new pony should be a preliminary training—dismounted—by means of the long reins, with the ob-

ject of teaching him to obey the indications from the bit, the four words of command, viz., "Whoa!" "Steady!" "Back!" and "Hup!" and of rendering him nimble on his feet.

The long reins is a continuous, flat, leather strap about one inch wide and forty-five feet long, having no buckles except the two used for attaching them to the bit rings. It should be used in connection with a broken, bar snaffle and a leather surcingle, the latter being not less than four inches wide and having four rings; one on each side on a line with the upper third of the shoulder blade; the other two lower down, one on each side on a line with the elbows.

Having the pony in the riding hall or in a suitably inclosed place, commence operations by putting on the bar snaffle and surcingle; the long reins should then be passed, one on each side, through the lower rings of the latter and attached to the bit rings. Now take the reins in your left hand as deftly and securely as possible, place yourself in the center of the hall and take up a position parallel with the pony, that is facing his side. The inside rein will then be in a direct line to you from the ring in the surcingle, at right angles to the pony's head, whilst the outside rein will pass along the farther side of the animal and come around his quarters above the hocks.

Start the pony at a slow walk and let him make a circuit, yourself always occupying the center and moving around gradually so as to be always parallel with him and facing his side.

Assuming the pony has been sent to the left to commence with, you might, if you consider it essential, command "Right turn!" when he has completed a circle; in any event you should at this point place your right leg forward, plant its heel firmly in the ground, hold the right rein firmly and pull the pony around, allowing the left rein to slip through your hand. When the animal has turned sufficiently, close the left hand on the left rein to prevent his turning toward the center of the ring; now regrasp both reins firmly, taking hold with the right hand, the left holding the left rein about a foot from the right. When the circuit to the right has been completed the manipulation of the body, hands and reins should be reversed.

Continue this exercise for several days, first at a walk and then at a trot. If the pony be a colt or has a bad mouth you.

should use a long, droplash whip and gently flick him on the inside shoulder when first teaching him to turn.

To teach him to halt the command "Whoa!" should be given with decision and it should be prolonged a little; simultaneously with this command ease up on the reins slightly and standing still abruptly yourself allow the pony to go on the bit. Do not pull back, simply keep your arms bent and rigid and grasp the reins firmly at the right moment. Should the pony refuse to halt repeat the exercise until it will do so. Very frequently half a dozen halts properly executed will cause the pony to obey the command without going on the bit at all.

Having progressed thus far, you now proceed to teach the pony to back. In this operation you will need the aid of an assistant. Let your assistant take the reins, adjust them evenly and take up a position to the rear and in line with the animal while you pass to his head. When you are both in position command "Back!" in a calm tone of voice, while your assistant at the word makes a steady pressure on the reins. If the pony does not respond, put your left hand gently on his nose and press slightly. Do not interfere with his breathing, however. Should he prove stubborn, place your right hand on his near shoulder in addition and give a backward push with the left as before and a side push with the right while you at the same moment again command "Back!" and have your assistant again put the pressure on the reins. Do not permit the pony to run backward indefinitely. Simply make him back a step or two and halt him immediately pressure on the reins is relaxed. The rein pressure should be relaxed promptly when any fair sign of an attempt to back is made.

You next should proceed to teach the pony to stand perfectly still when brought to a halt. Should he show any tendency to fidget or even turn a little to one side after obeying the command "Whoa!", he should instantly be corrected by use of the reins and even the whip, but the former should not under any circumstances be used for "flapping" purposes. The pony should be straightened out at once and compelled to return to the original stopping position and the command "Whoa!" repeated without any evidence of peevishness on your part.

The command "Steady!", used in a friendly tone, should be the only one used to calm the pony and give him confidence. It is often advisable to accompany this command by a hand pat on the neck when considered necessary.

When dealing with a difficult subject, one that bores and shakes his head, it is often necessary to pass the reins through the bit rings and buckle them to the upper side rings of the surcingle. This puts the animal more in your power and prevents his throwing his head.

Having progressed thus far the next step is to teach the pony to take up the canter at the command "Hup!" This word should be given in an energetic, sharp tone of voice, while at the same instant the feel on the reins should be slightly increased. It may take a few days to teach the animal to take up and hold a steady canter and to reverse at this gait, but the good results obtained will repay you later.

Persist in the commands "Whoa!" "Steady!" "Back!" and "Hup!" until the pony will obey them readily, and during the training use no other words and do not substitute one of these commands for the other at any time.

Having succeeded in teaching the animal to perform satisfactorily with the long reins, executing promptly and perfectly all of the exercises mentioned without exhibiting any inclination to rear, sulk or fidget, you may now proceed with his training under the saddle.

It might, with advantage, be remarked here that it would be advisable to practice with the long reins on an old horse for a day or two to gain manual dexterity in using them before commencing operations on the pony.

How do you know when your pony has had enough of the long reins training? When you can control him while he is excited.

To test your work in the ring excite the pony by loud cracking of the whip, firing off of a pistol, beating on an oil can, throwing an empty sack on his back unexpectedly or doing anything calculated to cause him to bolt. If under these conditions you find you can control him perfectly by means of the reins and the word of command you may rest satisfied with your work.

I believe that when the pony will back, almost without as-

sistance, for about twenty-five yards, three or four yards at a time, he is about two-thirds trained.

When the riding in saddle commences, do not change the form of the bit unless you consider it imperative. If a change must be made, due to a hard mouth, try some other form of snaffle before committing yourself to the curb.

Commence operations under saddle by riding in circle, an equal length of time each way, principally at the walk, progressing cautiously to the canter. Use both hands on the reins in the manner advocated at the Fort Riley School, but be sure you apply the pressure of the rein to the neck properly and at the right moment. Keep the pony's head in a good position and be sure he takes the correct leads at the canter—right leg leading when cantering to right, left leading when cantering to the left. Gradually decrease the size of your circle each day, collecting the animal well between your hands and legs, at the same time giving him the proper impulses by means of the aids and the inclination of the body. The body inclination, when riding the polo pony, should always be in the direction in which you desire him to move and so kept while moving in that direction.

Keep off his mouth. Make it a religious duty to keep off the pony's mouth.

In changing direction the animal should be taught to obey the slightest pressure of the reins on the neck in conjunction with the indication of the legs and inclination of the body. It is at this point that many ponies are given bad mouths and the habit of boring is confirmed. Of course at first, say in turning to the left, the right hand will be slightly elevated and carried somewhat to the left; the left hand will be lowered considerably and carried in the direction of the left knee, while at the same instant the pressure of the legs is increased, the left (which should be carried slightly to the rear) more than the right. The body from above the hips should be inclined steadily in the desired direction, but as progress is made in the training the reins must be used entirely by the left hand and pressure on the neck applied, without any pull on the mouth, in the direction in which we wish the animal to proceed.

In teaching the pony to rein quickly, using one hand, I find that a double snaffle and two sets of reins are best adapted for

the purpose. One pair of reins should be crossed under the neck, the left rein coming to hand on the right side and the right rein on the left, while the other pair comes to hand in the ordinary manner.

Those who have any knowledge of biting at all will readily see that with the crossed reins, in turning to the left for instance, a pressure on the right side of the neck will also cause a pull on the left bit ring, thus giving two indications from one rein. The double snaffle accustoms the pony to two bits and prepares him for the curb which may be considered necessary later, while the reins coming up in the ordinary manner may be used at intervals to accustom the pony to their indications.

We may now proceed to working on the figure eight, and this figure should be decreased in size from day to day as the pony becomes more handy and responds readily to the rein pressure and aids.

A good schooling in the circle and figure of eight is absolutely necessary, but the lessons should never exceed thirty minutes in duration; in fact, they should be discontinued the moment the pony loses interest or shows resentment.

Do not force the training when he becomes "hall sick." Give him a walk in the open for a change.

You should now proceed to cantering on straight lines, halting frequently and then taking up the canter directly from the halt; all at the word of command.

To get the pony to halt instantly no matter how fast he may be going is one of the most important and essential objects of the training. He must halt with the head up if anything, rather than down; there should be no reaching on the bit, for to halt properly the pony must do so from the hind quarters; whereas, if the head is down, the halting is done mostly from the shoulders. From this it will be readily seen that a pony which has been given a course of head flexion, direct and lateral and consequently arches its neck at the poll, will, with the aid of the rider, come to a halt from the gallop by the proper use of his posterior extremities and be in a position to immediately take up any given direction at high speed without having to regather himself.

Should the pony carry his head too high, a standing martingale may be necessary; if too low, an overcheck may be needed.

The latter appliance, however, I consider dangerous to both horse and rider, as the overcheck interferes with the free movement of the former.

For direct and lateral flexion of the head at the poll I would refer you to the book on horse training by James Phillis.

From the commencement of training you will find it to be of great advantage to hang a polo mallet in the stall where the pony can see and nose it, and to place a polo ball or two in his feed box or manger.

You now come to the point where the animal is to be trained to the mallet, and if you have been careful thus far and the pony has confidence in you, you will experience little trouble here. At first have the mallet handed to you while mounted and if any fear or fidgeting is manifested place it across your shoulder as if nothing were the matter and whistle or hum a tune in an unconcerned manner. Further progress is made by gently swinging the mallet fore and aft on the off side in line with the stirrup, next calmly changing it to the left hand, reins to the right, and swinging it on the near side, progressing very gradually from the walk to the trot and canter. When the pony has become accustomed to the mallet, the strokes should be practiced while at the halt, progressing by easy stages to the canter, great care being taken that the animal is not hit by the mallet during these exercises and that the pressure on the bit is not increased. At each stroke the rein hand should be lowered to the withers, as in playing the game, but a delicate feel should be kept on the mouth until the animal becomes accustomed to the maneuver and learns the connection between the stroke and the descent of the rein hand. Do not attempt the "cross" or "under the tail" strokes until you are sure of your mount.

When the mallet can be used freely without causing restiveness, a rubber ball may be called into requisition and "dribbled" gently about. With a soft rubber ball there will be no noise and should it strike the pony it will not hurt or frighten him. He soon gets the idea of following it and will apparently become much interested. Avoid missing the ball as much as possible, for there is nothing that irritates a polo pony so much as the constant returning after misses. When you do miss, advance as if you had hit and return on a wide circle, or after going thirty or

forty yards. Do not teach the pony to slow up or stop when you make a miss, for should you do so you will make a hesitater out of him. You will often find at this stage of the training, when the regulation ball is introduced and you begin to work more at the canter, that the pony will develop a tendency to "rump" away from the ball as the stroke is about to be made. I think this fault is due to an unsteady seat and an unequal pressure of the legs and hands, for in making the right forward stroke many riders are prone to lean well out over the right shoulder, thus bringing the rein hand in the same direction and putting on extra pressure with the right leg, all of which operates to turn the pony to the right on his forehand; however, this is a riding matter. When this fault has progressed to an undesirable extent it may be corrected by steadying the rein hand on the withers and closing, well back, the leg opposite to the side on which the disturbing stroke is about to be made.

All of this time you should use the established words of command, the recognized aids and keep off his mouth.

After you are able to approach and mount the pony with the mallet in your hand, begin to touch him with it on the neck, body and legs until he takes it as a matter of course at all gaits.

And now you come at last to the final steps in training, before a game with the pony is even thought of, viz.: "riding off," "Squeezing" and "Worming." For these purposes one or two old ponies ridden by steady men should be used and your pony should be calmly worked to shoulder off from right and left, the head being slightly turned away as in playing push ball. To encourage the pony in shouldering he should be given the best of the "riding off" frequently, and should be made much of by patting on the neck each time he does his work well. This training should be continued daily until the animal becomes efficient. Next place him between a pair of old ponies and accustom him to being squeezed and bumped, beginning gently and daily becoming rougher. Train him to worm in between two ponies; to stand still while they pass and repass him at the gallop, front and rear and as close as safety will permit; while the riders swing their mallets or make the strokes. Train him to meet others while he himself is at the gallop and to jump in and out of bunched formations readily; all of which has a tendency to make

him strong in scrimmages; a situation, by the way, in which too many ponies are cowards.

Now you are, having him well bandaged, ready to go into a short, mild game, playing preferably No. 4, and at no time forgetting the pony so far as to attempt to extend him in your eagerness to hit the ball. Play your preliminary games at the canter and be as careful with him as it is hoped you were in the earlier stages of his making. Play him at the canter until you are sure of him and of yourself.

If you have had your heart in your work and yourself and pony are blessed with good temperaments, I believe you ought now to be the possessor of a fair polo pony after your labor of love of six months, but you must still be careful and continue the schooling at intervals until the second season, when you should have a polo pony you are not ashamed of. Be careful to whom you loan him; be careful of his feet, mouth and digestion.

After six months' training as above the pony should be able to play three quiet games a week, depending on his condition and endurance, but he should not be abused by forcing him to, at any time, play two periods in succession. Your "horse sense" will be your guide here.

You must have spent many long months in preparing the pony to be a reliable, good tempered partner in your preferred amusement; be as careful of him as you would of a dear friend; cherish and watch over him, for if you have succeeded in producing a good one, he will be well worthy of your confidence, attention and esteem.

I cheerfully give credit to the Fort Riley School of Equitation, Sidney Galvayne, James Phillis, M. Bouchette, Major Dwyer and to many others whose excellent works on equitation I have read with pleasure these many years and from which I have stored up much valuable information.

## THE CAVALRY SADDLE.

BY FIRST LIEUTENANT A. M. GRAHAM, FIRST CAVALRY.

THIS article is not written with the intention of putting myself forward as an authority on saddles, nor do I consider that the statements made herein are not open to argument. It is merely an expression of my own personal opinion of the McClellan saddle, and the improvements that can be made thereon, based on eighteen months' use of a saddle modeled after my own ideas.

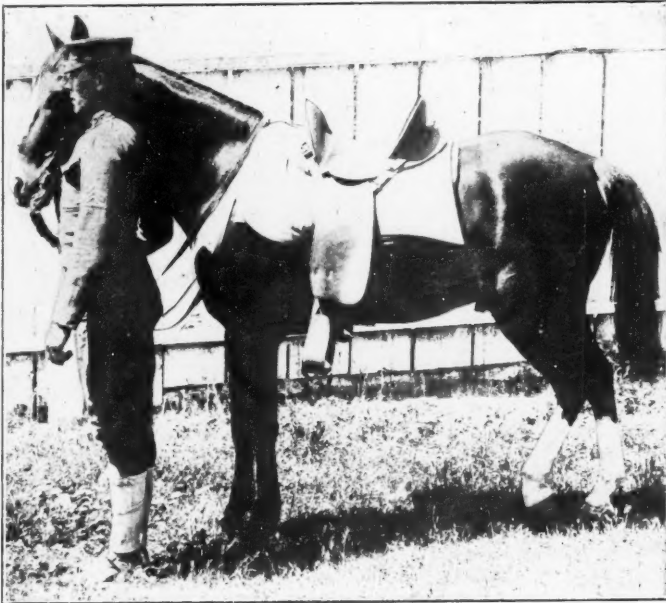
I consider that the chief requisites of a cavalry saddle are comfort for horse, security and comfort for the rider, durability, and construction for carrying the required pack. The McClellan saddle has the two latter requisites to a high degree; the other requisites I consider are greatly lacking.

First of all, I will state that my whole idea in the saddle which I had made was to combine the advantages of the McClellan saddle and those of a first-class stock or cowboy saddle, without retaining the disadvantages of either.

I will first deal with the question of the comfort of the horse, as that is, probably, the most important of all. The present saddle is not a good saddle for the horse, due to the fact that the bearing surface of the bars is too small. This is partly due to the size of the bars and partly due to their shape and the way they are put on the saddle. The bars are not long enough by nearly two inches. A McClellan saddle placed on an average horse in ordinary flesh, over a saddle blanket, sets on the lower part of the bars, the top part of the bars not bearing at all. That is, the bars are somewhat on edge. This defect could probably be remedied by adjustable bars. The saddle does not set well on the ordinary horse's back for another reason. The bars of the present saddle are too convex where they come in contact with the horse's back, both lengthwise and from the center outwards. This gives somewhat of a rocker motion to the saddle, and does

not allow all parts of the bars to bear on the horse's back equally. These defects in the bars of the McClellan saddle can be remedied by adopting the bars used on good stock saddles. Most of the weight carried by a cavalry horse is, I think, back of the center of the saddle, therefore why not have the bars project further behind?

At Camp Stotsenburg, P. I., while on duty with Troop "H," First Cavalry, I received the saddle which I had made for



NEW SADDLE.

me by the Ordnance Department at Manila, P. I. One of the sergeants of the troop, Sergeant William J. Boyle, had an excellent horse, of which he was very fond. At some time this horse's back had been made sore just under the cantle and if ridden even once at drill with a McClellan saddle and ordinary saddle blanket, this back again became sore. To prevent this, I had Serg't Boyle take some condemned blankets, fold to six thicknesses, cut to proper size, and sew it all together. Then a hole was cut entirely through this pad, leaving the edges slanting.

With this pad the horse could be ridden regularly without injury to his back. After I got my new saddle, I had Sergeant Boyle use it for about a week instead of his own saddle. This saddle was put on with an ordinary saddle blanket and no precautions at all were taken not to hurt the sore back. During this time Sergeant Boyle used the horse for drill, etc., every day, and the scab was not rubbed off the sore.



NEW SADDLE.

Most of the sore backs on practice marches are cantle sores, except when sores are made in other places from the heavy rifle being on one side with nothing to counterbalance it on the other. The conformation of a horse often makes the saddle cause him discomfort. Some horses are low in front, and then the saddle slips forward, making the back tender on top of the shoulder blades and causing elbow sores and cincha sores. For

this kind of a horse a crupper would be a fine thing. Some horses are high in front and low behind; for this kind breaststraps should be issued. For *any* horse being ridden in rough, mountainous country, both breaststraps and crupper should be issued and worn.

The McClellan saddle is a light saddle and holds its shape well; still if all saddles were turned into the arsenal once in five years to have new rawhide covers put on the trees, I think our horses would have less sore backs due to the trees having spread.

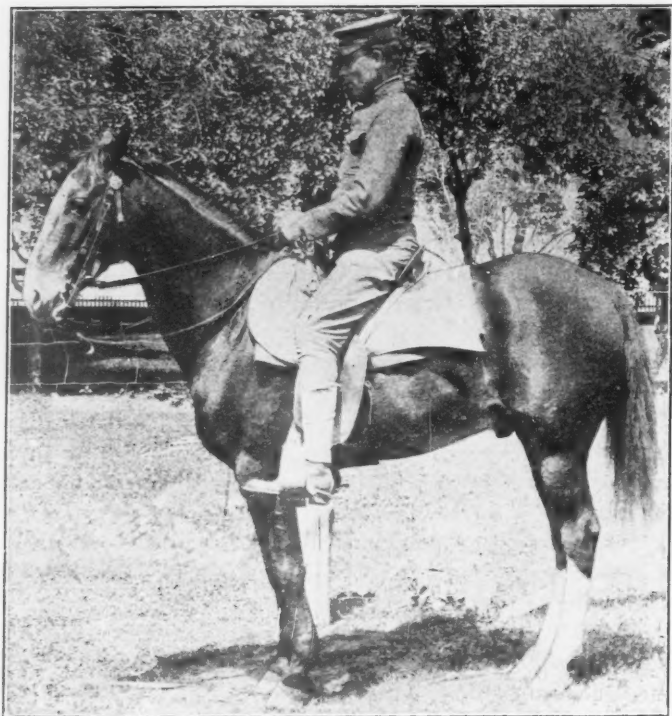
As to the security and comfort of the rider, there is probably a large diversity of opinion. I think it is generally conceded in the service that even a good rider can not ride a *bad* horse with a McClellan saddle. My observation has been that when a troop has a buckner to be ridden, a stock saddle is generally borrowed from the pack train or elsewhere, and the regulation saddle is not considered for this purpose at all.

I consider the security of the rider's seat in the cavalry service to be a very important matter if he is to fight mounted. Security of seat is one of the requisites which is lacking in the present saddle when compared to that in a good stock saddle. The whole saddle (McClellan) slopes forward and downward from the cantle nearly to the pommel excepting the two upper edges of the bars, which slope upward toward the pommel. The tendency, when the saddle is gripped with the legs, is to work the body forward away from the cantle and toward the pommel and thus getting on top of these two sharp edges of the bars. On a plunging or bucking horse or one that is pulling hard on the reins, this is exactly what the rider wishes to avoid, as he is much more secure if he can retain his position against the cantle of the saddle and still grip his horse with the thighs. On a horse which is behaving badly if the rider once gets shaken loose from his position against the cantle he is easily thrown.

The cantle of the regulation saddle, when viewed from side to side, is flat; that is, a straight edge laid on the inside of the cantle horizontally would touch all the way across. I can see no reason for this, as it is not the shape of a person's body where it touches the cantle.

The cantle of the saddle starts slanting upward at least three inches too far forward, and the slope of the cantle is at no

time abrupt enough to conform to a rider's buttocks when sitting in the saddle. There are two nearly constant slopes to the cantle, and these two slopes form an angle, instead of being uniformly concave, so as to conform to the shape of the rider. These defects detract both from the comfort and security of the regulation saddle. With the present regulation saddle a rider having

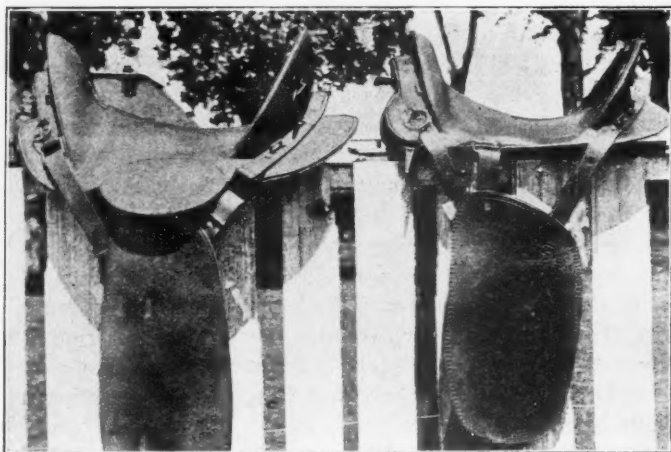


McCLELLAN SADDLE.

the regulation seat is sitting with the two bones of his buttocks resting exactly on the two edges of the bars, which have an opening between them from cantle to pommel. He is also sitting on a slope from the cantle forwards. Why not fill in this crack in the seat of the saddle as it is filled in on a stock saddle? It certainly is much more comfortable filled in, and adds very little to the weight of the saddle.

There are two other good reasons for filling in this crack: one is that it is cooler for the rider, and the other is that with it filled in, the blanket and saddle cloth cannot work up between the bars and cause discomfort. The heat from the rider's body is not as great as the heat which comes up from the sweating horse, and it can make little difference in heat to the horse, as the crack is only filled in where the rider sits.

I think that it is generally conceded that many of the sore backs among cavalry and artillery horses are due to riders lounging in their saddles, either from fatigue or carelessness, or both.



NEW SADDLE.

McCLELLAN.

If the saddle were more comfortable and supported the back better, wouldn't the rider stand a longer march with less fatigue, and so avoid some sore backs?

It is said that the poor rider has to hold on with the reins to keep from falling off. Wouldn't he be able to stay on better and so cause the horse less discomfort if he had a saddle which he could grip more securely with his legs?

The bars of the McClellan saddle at the places where the thighs grip them slope abruptly downward until they come to the horse's back; from that point the horse's back and side bulge out, leaving a place between the bars and the horse's side where no grip is obtained. This also is wrong.

All of the above defects are corrected in the stock saddle. There are definite places hollowed out for the thighs to grip; the cantle is concave both horizontally and vertically, and is abrupt enough to conform to the rider's figure; the seat is filled in and is oval; the grip of the thighs is continuous to the knees.

The pommel of the regulation saddle is excellent in shape for military purposes, but is not high enough in the arch, as with a very high withered horse it may touch and so make sore withers.

The saddle which I had made in Manila was not exactly what I wanted, due entirely to my own lack of knowledge, and due in no way to the Ordnance Department, as the officer in charge there and his workmen helped me in every possible way. The seat of this saddle was a little too wide, and the pommel was not quite as high as I desired. I also desired the cantle to be about one inch higher than the regulation saddle, so as to raise the cantle pack higher from the horse's back. I am now having another one made with these conditions corrected.

Another bad thing about the present regulation saddle is the manner of attaching the foot staples which hold the rifle and saber on the front of the saddle. Sometimes the screws holding these foot staples pull out of the wood and the rifle drops. By riveting these staples to the quarterstrap this is avoided.

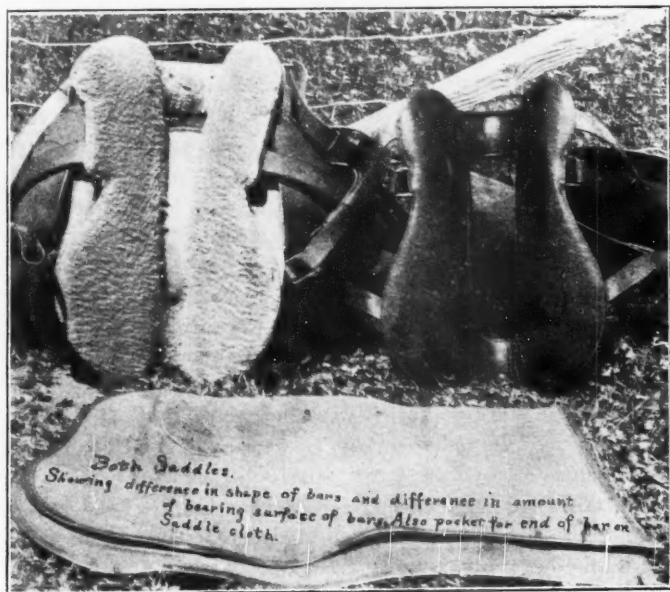
The saddle which I have been using and the one being made both have sweatleathers and jockeys. Sweatleathers without jockeys pinch the leg slightly with every movement, getting the leg between the sweatleather and the saddle cloth. The jockey being, as it is, part of the seat of the saddle, laps over the sweatleather and prevents this pinching.

I find the open stirrups, wood, leather covered, to be much more comfortable and much easier to keep on a plunging horse, or when leaning out of the saddle for saber exercises. To obviate the danger of being hung in the stirrup in case of accident or fall, I have had safety stirrup loops put on the saddle.

The saddle which I am at present riding weighs two pounds more than a regulation saddle with sweatleathers.

The bars of this saddle are lined with sheepskin, with the wool on, which is an excellent thing when no saddle cloth is used. With a saddle cloth the wool does not prevent the cloth from slipping back from under the saddle and thereby neces-

sitating frequent adjustment. To prevent this slipping back of the cloth and blanket, which stick together, I had small leather pockets just the shape of the front end of the bars sewed to the saddlecloth and the ends of the bars are slipped into them. The pockets require a very close scrutiny to detect them when the horse is saddled. This device entirely did away with the cloth and blanket working back from under the saddle as well as preventing them from working up over the withers under the pommel.



The saddle is "rigged" exactly like a regulation saddle, with shields, foot staples, rings, adjustable quarterstraps, saddlebag stud, etc. The present regulation saddlebags fit it just as well as they do a McClellan. In appearance, with rider, the saddle looks exactly like a McClellan. When dismounted the difference in the seat is evident. When a man is mounted, a slight difference is noticeable when viewed from the rear, due to the difference in shape of the cantle.

## MOUNTED SPORT AT FORT HUACHUCA.

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HOWEVER small a cavalry garrison may be there are always present elements for good sport such as is conducive to better horsemanship and to genuine interest and affection between men and their mounts. Moreover such sport as will be indicated in this short paper has an important bearing in teaching officers and men to put horses in condition for varying tests, to estimate pace in connection with distance, and above all in giving them an opportunity of studying breeding, conformation and size in relation to weight-carrying, to distance and to speed in rough going. Fortunately the army's ideal of a troop horse or charger has greatly changed within the past ten years. The short back-big-barrel was carried to that point where an overgrown pony became a charger. In fact such an animal would be distressed if made to keep apace with a proper type at leisure gallop.

For the most valuable race, the two mile one, the early try-outs eliminated all the horses that did not possess a liberal infusion of blood (thoroughbred), barring two Fifth cavalry horses whose pedigrees are unknown and of whose blood only surmises can be made.

Furthermore the system of recording pedigrees of horses on the descriptive cards was vindicated here. We had no pedigrees of the horses that we received upon arrival at this station from the Fifth cavalry, but the pedigrees (good, bad or indifferent) were matters of record of those horses brought from Montana and those afterwards obtained from the Reno remount station. The following is the order of events for the two days, April 15th and 16th:

### FIRST DAY.

#### 1. *Galloway Steeplechase:*

Big Moccasin Course; half mile; three obstacles; top weight 170 pounds; five pounds for each half inch.

2. *Cow Pony Race*:  
440 yards, from second water jump to finish.
3. *Rescue Race*:  
Four men from each troop; 200 yards and back.
4. *Bending Race*:  
Eight stakes 20 feet apart; 40 foot start; through and back.
5. *Indian Scout Race*:  
Big Moccasin Course, without obstacles.
6. *Burro Race*:  
Little Moccasin Course.
7. *Troopers' Steeplechase*:  
Catch weights; twelve obstacles; two miles.
8. *Polo Game*:  
Reds vs. Greens.

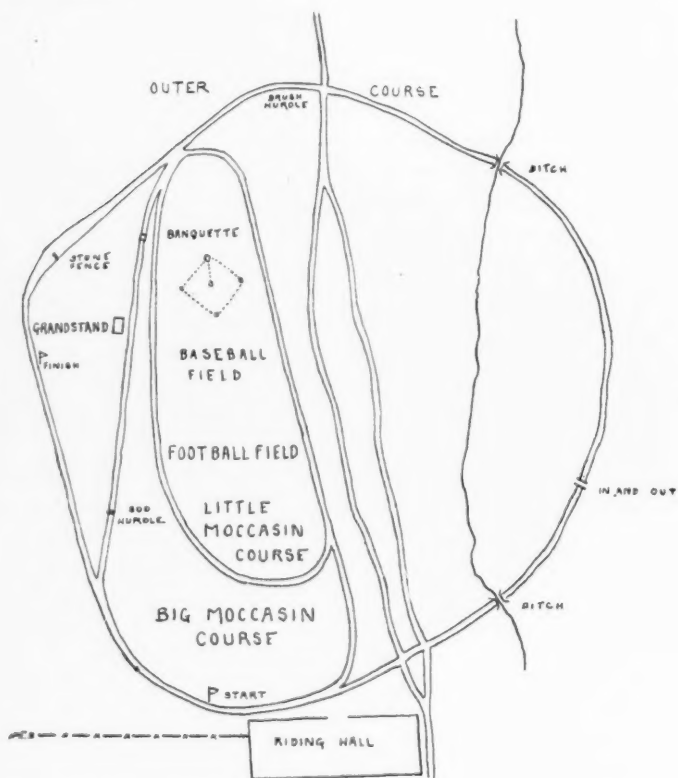
## SECOND DAY.

1. *Driving Polo Ball*:  
Length of field and back.
2. *High Jump for Horses*:  
Start four feet high.
3. *Form Jump*:  
Only performance to count; horse 75 per cent, man 25 per cent.
4. *Galloway Race*:  
Little Moccasin Course; 600 yards; no obstacles; top weight 170 pounds; five pounds for each half inch.
5. *Officers' Steeplechase*:  
Catch weights; two miles; twelve obstacles.
6. *Mule Race*:  
For Quartermaster's employes; Little Moccasin Course.
7. *Consolation Race*:  
Six furlongs; five obstacles including in-and-out; for all horses, galloways and ponies that have not been placed.
8. *Polo Game*:  
Winner first game vs. Whites.

There was an average of a little more than five starters for all of the races and jumps.

By reason of the systematic training that had been pursued the events were well contested and gave most interesting proof of improvement in riders and horses.

The following diagram will give a better idea of the various courses and of the steeplechase course in general than would any pen picture:



STEEPLECHASE COURSE  
FORT HUACHUCA ARIZONA  
SCALE 1"=200'

The two mile course was twice around the outer course, once around the Big Moccasin and then over the finish, with the

following obstacles: rock hurdle three feet six inches high, brush hurdle same height, in-and-out three feet three inches, two ditches six feet and six feet six inches wide, sod hurdle three feet three inches and banquet three feet six inches high and ten feet wide. Five of these jumps were on the outer course and two on an inner track.

The diagram and program taken with these details sufficiently explain the other races. The photographs are unfortunately very unsatisfactory.



POPPY.

CORPORAL TOWET UP.

The high jumping contest was over the regulation horse show fence and three horses cleared four feet six inches; one four feet nine inches.

The jumping for form was over the sod hurdle, a brush hurdle four feet high, and the banquet—the second being placed between the first and third.

The following are the best horses developed during the training and their work and conformation certainly suggest them

as good horses for modern cavalry. The same has been demonstrated on two recent practice marches, one to Tucson and back; and the other to Willcox and back, each approximately 150 miles over some of the driest country in Arizona (arida zona):

Poppy.....16 hands; sorrel; half bred; dam a thoroughbred, sire a standard bred; girth 73 inches, weight 1045, 7 years.

Baldy Hornet...16 hands; sorrel; nearly thoroughbred; sire imported Pacapluie, dam three-fourth bred; girth 75¾ inches; weight 1105, 8 years.



RAZZLE DAZZLE.  
PRIVATE ELLIS UP.

Brownie II.....15.2½; brown; half bred; sire thoroughbred Arthur, dam half Morgan, half standard bred; girth 74, weight 1065, 8 years.

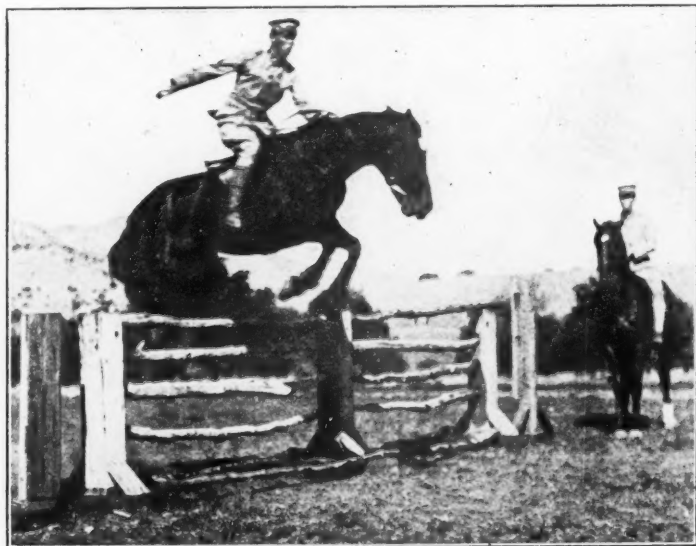
Buck.....15.3; bay; breeding unknown, but appearances indicate chiefly standard, with some thoroughbred and possibly some saddle bred; girth 71, weight 1010, 11 years.

Regent.....16 hands; thoroughbred; sorrel; girth 72¾, weight 1090, 6 years.

Stockinet.....15.3; bay; three-fourth bred; sire a thoroughbred, dam a graded mare with running blood; girth 73, weight 1030, 6 years.

Razzle Dazzle.. 16.1½; sorrel; nearly thoroughbred; sire thoroughbred; dam seven-eighth bred range mare; girth 77½, weight 1150, 7 years.

Cracker Jack... 15.3; brown; half bred; sire Imp Bawbee, dam range mare; girth 73¾, weight 1030, 7 years.



BROWNIE.  
SERGEANT CRAIG UP.

Frisco.....15.3¼; bay; breeding unknown, but appearance indicates standard, possibly with some Coach blood; girth 74½, weight 1060, 7 years.

Keno.....15.3; sorrel; breeding same as Razzle Dazzle; girth 73¼, weight 1040, 7 years.

Bob.....15.3¾; bay; thoroughbred; girth 76, weight 1100, 7 years.

The average weight was 1063 pounds and all of the horses were in trained condition.

Each of these horses is a good weight carrier and barring one, all are of good temperament; in fact they are excellent cavalry mounts, capable of galloping a good distance without being pumped out.

The most suggestive feature connected with the above exhibit is the very large infusion of thoroughbred blood.

The troopers' two mile steeplechase was won by Buck, but



BALDY HORNET.

two others would probably have led him at the finish but for being crowded off the track at the last obstacles.

The time was four minutes and twenty-five seconds.

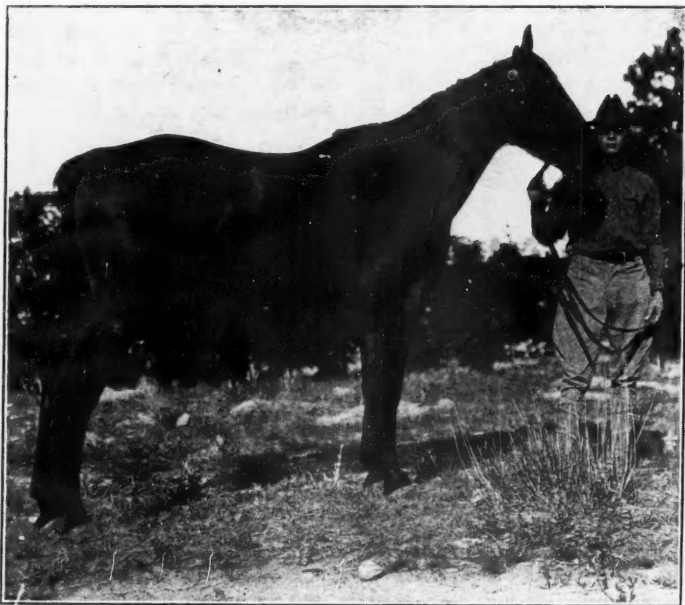
In the six furlongs (1354 yds.) the pace was a trifle better than a two-minute gait and was won by Baldy Hornet. By comparing these times and the greater weights carried here with those of the Eastern steeplechases it will be seen that this showing is quite remarkable.

In a subsequent race for two miles over twelve hurdles in which five of the above were competing each carrying 161 pounds Razzle Dazzle and Baldy Hornet were the first two to finish.

In both jumping contests Brownie II was first and Regent second.

The conditioning of horses for the two mile races was a most interesting and valuable training to all concerned.

Unlike flat racing there is but a small chance here for spoil-



BOB.

ing horses by making them bolters for the very simple reason that riders must at all times keep their mounts well in hand.

As an indication of the degrees of training of both men and horses, I cite the fact that at the taking of the in-and-out the second time, after having gone a mile and a half, all the horses (8) were between the jumps at the same time and not a fault was made by any one.

In the minor events blood also showed telling results.



## Reprints and Translations.

### MORAL IN WAR.

By "DENKMAL."

From the *United Service Magazine*, August, 1910.

THIS article is a mere pot-pourri of quotations from various authors, each having his own individual style, the whole being served up by the writer, who professes to no style at all, and it therefore pretends to no literary merit. But, it is thought that, by quoting leading opinions, one can best show the great importance of the moral aspect of war, and it is further hoped that the reader to whom the quotations are new may be led to study the originals from which they are taken. In treating of moral in war, it is perhaps most convenient to take Clausewitz\* as our guide, and to touch briefly, first on the moral forces in war, next on the moral powers which help us to cope with those forces, and finally to point out some methods of fostering these moral powers, and of turning the moral forces to our advantage and to the enemy's disadvantage.

*Moral Forces.*—In discussing moral forces and their effects, Clausewitz deals with—

1. Hostile feeling. He says: "We are apt to regard the combat in theory as an abstract trial of strength, without any participation on the part of the feelings, one of the thousand errors which theorists commit."
2. The impressions of danger, as affecting one's courage.
3. The extent of the influence of danger. This, in the case

\*"On War," translated by Colonel J. J. Graham, from the third German edition. Kegan Paul, French, Trubner & Co.

of the lower ranks, affect them merely as danger to themselves; but in the case of the higher ranks, it affects a man's power of taking responsibility.

4. Other powers of feeling. Envy, generosity, pride, humility, fierceness, and tenderness, all may appear as active forces in the great drama of war.

5. The "fog of war" caused by lack of certain information. In war we are always groping in the dark. Clausewitz says, of "Information,"—"Great part of the information obtained in war is contradictory, a still greater part is false, and by far the greatest part is of a doubtful character." The doubts and perplexities caused by this want of information must affect the minds of all engaged in war, and the more so as they approach the higher ranks.

6. Chance. "There is no human affair, which stands so constantly and so generally in close connection with chance, as war."

7. "Friction in war," *i. e.*, the thousand and one things which may happen to upset one's calculations. Among other causes of friction, Clausewitz includes bodily exertion, which may affect some men or units to an unexpected degree.

All the above are moral forces affecting the mind of a commander of any body of troops, and most of them affect the minds of subordinate leaders and rank and file.

We thus see that although the principles of war are few and simple, yet that, to quote Clausewitz, "in war the simplest thing is difficult," the reason being that *human nature* is the governing factor.

*Moral Powers.*—Clausewitz defines the chief moral powers as—

1. The talents of the commander.
2. The military virtue of the army.
3. The national feeling.

In discussing the military talents of the commander, he points out that boldness and perseverance are most important.

"First ponder, then act," as Moltke said. When you have pondered your plan and proceed to put it into execution, then

the difficulties begin to arise, caused by friction, fog, danger, etc.

You may then, if you are not careful, be influenced by local events. You will think, because something near you seems to be going wrong, or because you get bad or disquieting news, that perhaps your plan was not sound.

This is where military talents, boldness, and perseverance come in.

Do not allow these seeming difficulties and mishaps to affect your moral. Realize that, after all, your plan was carefully thought out before you came under the influence of these disturbing surroundings, and that your plan was sound and is still sound. Carry it through. That is to say, carry it through up to the battle which you are trying to bring off. After the battle, things may be completely altered, and, as Moltke says, it is only the layman who can pretend to foresee events beyond that.

We have spoken, so far, of the perseverance required to carry out a preconceived plan; but in tactics, in battle, one may often have no time to "ponder." In situations where instant action is required, our chance of acting correctly will depend chiefly on the extent to which we have striven, by previous study and practice, to make ourselves masters of our profession. In the words of Sir John French, "all knowledge on the battlefield, to be of any use, must be instinctive knowledge." But even on the battlefield, the commander can foresee events to a certain extent, and, whilst others are acting, he must be thinking.

Of perseverance Clausewitz says: "The reader expects to hear of lines and angles, and finds, instead of these citizens of the scientific world, only people out of common life, such as he meets with every day in the street. And yet the author cannot make up his mind to be a hair's-breadth more mathematical than the subject seems to him to require, and he is not alarmed at the surprise which the reader may show. In war, more than anywhere else in the world, things happen differently to what we had expected, and look differently, when near, to what they did at a distance. With what serenity the architect can watch his work gradually rising and growing into his plan. . . . In war, on the other hand, the commander of an immense whole finds himself in a constant whirlpool of false and true information, of mistakes committed through fear, through negligence, through

precipitation—of contravention of his authority, either from mistaken or correct motives, from ill will, true or false sense of duty, indolence or exhaustion,—of accidents which no mortal could have foreseen. In short, he is the victim of a hundred thousand impressions of which the most have an intimidating, the fewest an encouraging tendency.

"By long experience in war, the tact is acquired of readily appreciating the value of these incidents; high courage and stability of character stand proof against them, as the rock resists the beating of the waves.

"He who would yield to these impressions would never carry out an undertaking, and on that account, perseverance in the proposed object, as long as there is no decided reason against it, is a most necessary counterpoise.

"Further, there is hardly any celebrated enterprise in war, which was not achieved by endless exertion, pains, and privations; and as here the weakness of the physical and moral man is ever disposed to yield, therefore an immense force of will, which manifests itself in perseverance, admired by present and future generations, can conduct us to the aim."

Again, in his Summary of Instruction for the Crown Prince, under the heading "General Principles to be Observed in War," Clausewitz says, "The great object of the theory of war is to guide us to the way of obtaining a preponderance of physical force and advantages at the decisive points, but if this is not possible, theory teaches us how to speculate upon the moral powers; upon the probable errors of the enemy, upon the impression made by a bold spirit of enterprise, etc., etc., *even upon our own desperation*. All this is by no means beyond the province of the art of war in its theory, for that theory is nothing but rational reflection upon all the situations in which we can be placed in war. The most dangerous positions in which we can be placed are just those which we should look upon as most likely to occur, and those about which we should most distinctly make up our minds. That leads to *heroic resolves founded on reason*.

"Whoever represents the affair in any other manner is a dangerous pedant, who can only do harm by the views he advances. In the critical moments of life, in the tumult of battle, you will

one day feel clearly that no other view can give any help, when help is most necessary, and when a dry pedantry of figures leaves us to our fate.

"Naturally in war we always seek to have the probability of success on our side, whether it be that we count upon a moral or physical superiority. But this is not always possible; we must often undertake things when the probability of succeeding is against us; if, for example, we can do nothing better. If, in such a case, we despair, then our rational reflection and judgment leave us just when most wanted, when everything seems to conspire against us.

"Therefore, even when the probability of success is against us, we must not, on that account, consider our undertaking as impossible or unreasonable; reasonable it will always be, if we can do nothing better, and if we employ the few means we have to the best advantage.

"In order that, in such cases, we may never lose equanimity and firmness, two qualities which in war are always the first to be in peril, which in such a situation are difficult to maintain, but without which, with the most brilliant qualities of the mind, we can effect nothing, we must familiarize ourselves with the idea of falling with honor.

"Amongst all the operations left to your choice in any given case, amongst all the measures which are open to adoption, there will always be a choice between the bold and the prudent. Some people think that theory is always on the side of the prudent. That is false. If theory could give advice in the matter, it would counsel the most decisive, consequently the boldest course, as that is most consistent with the nature of war; but it leaves the general to choose according to the measure of his own courage, of his spirit of enterprise, and confidence in himself.

"Choose, then, according to measure of these inner powers, always remembering that there never was a great general who was wanting in boldness."

History teems with examples of success consequent on adopting, and of non-success consequent on failing to adopt, the bold course; as instances of the former may be noted Wellington's landing at Figuera in August, 1808, his passage of the Douro in 1809, Moore's bold stroke at Napoleon's communications in 1809;

and as instances of the latter we have only to turn to the conduct of their opponents, *e. g.* Soult and Victor in the beginning of 1809, Massena and Soult in 1810.

But we must not mistake for boldness unreasoning rashness, such as that of Junot's ill-timed march and headlong onslaught at Vimeira; nor must we confuse perseverance with stupid pig-headed obstinacy, such as Cuesta displayed on the 24th and 25th July, 1809, when he insisted on following Victor. Again, when deciding on a bold course, we must take all possible steps to minimize the risks, as Moore did by forming an alternative line of supplies via Astorga to Coruna, when risking his line of retreat to Lisbon; we must neglect no opportunity of gaining information, and, if necessary, we should modify our plan; as Moore did, firstly, when on the 13th December, 1809, in consequence of an intercepted despatch, his hitherto vague threat at the French communications developed into a definite aim at Soult, the defeat of whom would be more likely to attain the end in view (*viz.*, to draw Napoleon after him and thus gain time for the Spaniards in the south); and, secondly, on the 23rd, when he found that he had achieved his object, without attacking Soult, and that further time could be more surely won by retreat than by advance.

What Clausewitz means is that we must not resign the initiative to the enemy. We must not give up our plan and follow the enemy's plan just because something seems to be going wrong. It is possible that had Bennigsen made another push at Eylau on the morning after the battle, he might have won.

Again, on the 17th of June, 1815, Wellington was waiting for the Prussians to continue the battle, unfinished overnight. If they had done so, Napoleon might have been overwhelmed on the 17th, instead of which, victory trembled in the balance on the 18th. So far as we can see at present, Kuropatkin might perhaps have won at Liau-yang or Mukden, had he formed and carried through a definite plan of battle with the idea of winning, instead of conforming, as he did, to the Japanese lead, merely to avoid defeat; and at the Sha-ho and Heikoutai he seems to have lacked the perseverance to carry through his plan.

A bold, decided course of action might have brought victory to McMahon at Worth, Bazaine at Vionville, Bennigsen at Pultusk and Friedland, Benedek in Bohemia, 1866.

Clausewitz, as we have seen above, considers that only by means of an immense force of will can a general persevere. But it is doubtful whether this force, if the mere will power of a human being relying on himself, can lead to such great things, as the force engendered by a trust in the guidance of a Supreme Being.

If we turn to history we find that it is this trust in a Higher Power that has actuated most great leaders in war. Mahomet is a remarkable instance of this; and, in more recent times, Cromwell, Marlborough, Stonewall Jackson, and Lee. The author of "Napoleon as a General" points out how the great Corsican's "iron will" "changed into unyielding obstinacy . . . as he never would conquer or restrain himself, all his successes ended eventually in unsuccess."\* And he instances Cromwell as a great example, on the contrary, of a man whose "power of will in spite of durable successes" was evinced in the "preservation of a spirit of moderation even when on a pinnacle of human greatness."† But is not this precisely because Cromwell, unlike Napoleon, regarded himself as an instrument of God?

Of Marlborough‡ we read, "There can be no doubt of the strong faith in God which influenced his conduct"; his letters "teem with expressions of trust in God, of belief in God's constant watchful care over him, and of unqualified reliance upon His aid and support. In every undertaking he looked for the particular blessing of the Almighty, and saw His hand in all that happened. It was God who gave him the victory, and it was by His mercy that he was preserved through the dangers which he encountered. He spent hours of the night before Blenheim in prayer, and, as was ever afterwards his custom, he received the Sacrament before going into action. . . . He certainly possessed a childlike belief in the efficacy of prayer, which in a mind of his calibre, so often confounds the reasoning of the ablest sceptic."

\* "Napoleon as a General," vol. i. p. 25.

† Ibid., vol. ii. p. 419.

‡ Wolseley's "Life of Marlborough," vol. ii. p. 440.

"Divine service was regularly performed in all his camps, both morning and evening; previous to a battle prayers were read at the head of every regiment, and the first act, after a victory, was a solemn thanksgiving. 'By these means,' says a contemporary biographer, who served in his army, 'his camp resembled a quiet, well-governed city. Cursing and swearing were seldom heard among the officers; a drunkard was the object of scorn; and even the soldiers, many of them the refuse and dregs of the nation, became, at the close of one or two campaigns, tractable, civil, sensible, and clean, and had an air and spirit above the vulgar.' " \*

"During the whole of his active career he retained a constant sense of the superintendence of the Supreme Being, and was ever the first to ascribe the successes which he had gained to Divine protection; a disposition which shone forth with peculiar grace amidst the din of arms and the flourish of trumpets for his own mighty achievements." †

Henderson's "Stonewall Jackson" is too well known to quote on this point, nor need we do more than refer to Robert Lee's implicit trust in the Almighty.

With regard to the second moral power, as defined by Clausewitz: "the military virtue of the army," he says, "War is a special business (and however general its relations may be, and even if all the male population of a country, capable of bearing arms, exercise this calling, still it always continues to be) different and separate from the other pursuits which occupy the life of man."

"To be imbued with a sense of the spirit and nature of the business, to make use of, to rouse, to assimilate into the system, the powers which should be active in war, to penetrate completely into the nature of the business with the understanding, through exercise to gain confidence and expertness in it, to be completely given up to it, to pass out of the man into the part which it is assigned to us to play in war, that is the military virtue of an army in the individual."

With regard to the military virtue of the army as a whole, he says, "An army which preserves its usual formations under

\* Alison's "Life of Marlborough," p. 393.

† Ibid., p. 394.

the heaviest fire, which is never shaken by imaginary fears, and, in the face of real danger, disputes the ground inch by inch; which, proud in the feeling of its victories, never loses its sense of obedience, its respect for, and confidence in, its leaders, even under the depressing effects of defeat; an army with all its physical powers, inured to privations and fatigue by exercise, like the muscles of an athlete; an army which looks upon all its toils as the means to victory, not as a curse which hovers over its standards, and which is always reminded of its duties and virtues by the short catechism of one idea, namely, the honour of its arms—such an army is imbued with the true military spirit."

He goes on to say that military virtue can only be generated from war, and by the highest pitch of training for war. After a war, it may be kept up in an army for some time, but will gradually disappear in a prolonged peace. He says that, as in the case of the Spanish guerrillas (and, as we have seen lately, the Boers) its place may be supplied by the third moral power, the national feeling, the natural qualities of a warlike people, bravery, aptitude, powers of endurance, and enthusiasm.

Such was the case as it presented itself to Clausewitz: but it may perhaps be worthy of consideration whether we should not look upon the national feeling as the proper *complement* rather than as the *alternative*, of what Clausewitz calls the military virtue of an army, and especially so in these days of national armies. It appears to us that the highest possible state of moral can only be produced by a careful training for war, grafted on to a strong national feeling, and with a finishing touch of actual war experience. We are convinced that, other things being equal, an army thoroughly imbued with some strong feeling, such as warlike enthusiasm for what it considers to be a just cause, patriotism, or religious fervor, will be capable of greater deed, and more proof against adversity, than an army not so imbued. It was warlike enthusiasm that brought success at first to the French revolutionary armies, and it was the religious fervor and patriotic enthusiasm roused by the Tsar's proclamation in 1807 that brought to the field of Eylau a foe worthy of the Frenchman's steel.

Bushido was a great power in the Japanese army, and moreover the whole nation had for ten years been educated up to war with Russia. Patriotism wrought wonders for the Prussians of 1866 and the Germans of 1870. But true patriotism, rendering a nation capable of unselfish sacrifice, not only in actual war, but in peace time—a patriotism which shows itself by cheerful peace preparation—can only be brought about by careful national education. It is not a natural instinct, and must be taught. The natural instinct is selfishness; and that must be combated with all our might.

We have already put forward a suggestion that a trust in a Higher Power may be the surest guide to the commander in moments of doubt. May not this apply equally to the army? May not a sense of the righteousness of one's cause, and a deep religious feeling, be the strongest incentive to heroism in the army itself? History does not lack examples in support of the theory that the religious feeling is the strongest of all which can sway the human race. The Israelites of old, Cromwell's Ironsides, the Russian peasants of 1807, who, contrary to the usual custom, when drawn for the army, "joyfully left their homes, and marched with songs of triumph, amidst the blessings of their countrymen, towards the frontier, the anticipated scene of their glory or their martyrdom";\* Marlborough's army, in every regiment of which "Divine service after the Protestant form was regularly performed morning and evening; who prepared for battle by taking the Sacrament, and terminated their victories by thanksgiving";† the Sikh sect, whose religious fanaticism joined to military ardor has won them a reputation as first-class soldiers; the heroic dervishes of Omdurman; all these examples may be cited. And the question may well arise, to what extent their religious fervor was an asset, and to what degree of success they might have attained without it. It may be urged perhaps that religion was not a strong point in the pressed men who fought so gallantly at Trafalgar, or in the ranks that stormed Badajoz. But, on the other hand, would an army of the stamp of Cromwell's have become so demoralized

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\* Alison's "History of Europe," ch. cxliv.

† Alison's "Life of Marlborough," p. 447.

by retreat as was the case in Moore's retreat to Coruna, and Wellington's retreat from Burgos?

We leave the point for the consideration of the reader, and pass on to the question as to how we can foster the moral powers. And we should remember that our object is not merely to enable us to rise superior to adverse moral forces, but also to so make use of the moral forces as to adversely affect the enemy.

Amongst the means of raising the moral of the commander, we must perhaps give the first place to knowledge that he has carefully thought out every possible move beforehand, and eliminated chance as much as possible, and that therefore he is not likely to be surprised.

He must try to see the enemy's disadvantages and his own advantages, and not fall into the error committed by McMahon in 1870, Clam Gallas on the Iser in 1866, Bennigsen after Eylau, of seeing only the worst side of things in his own situation, the best in that of the enemy.

He should rest secure in self-confidence, in the knowledge that, come what may, he has done his best, and in the feeling that he is thoroughly versed in his business.

Confidence in his own troops will also increase the moral power of the commander, *e. g.* Wellington's strategy in the Peninsula became bolder and of wider scope, as he gained confidence in his troops. Moltke's strategy in 1866, cautious at first, became extraordinarily bold after the initial successes leading up to Sadowa.

A good intelligence system is an essential factor. The more we can pierce the fog of war, the higher becomes our moral, and, conversely, the more we can envelop the enemy in this fog, the lower will become his moral. Want of information was largely responsible for the hesitation and want of vigor which allowed the cup of victory to slip from the nerveless grasp of Soult and Victor in 1809, Soult and Massena in 1810. Had the Prussians known the full extent of the situation on the evening of the 16th June, 1815, it is possible that they might have stood firm on the 17th instead of retreating.

Then, again, we may lower the enemy's moral by surprising and defeating him, spreading rumors to cause him to make needless tiring marches. Stonewall Jackson's methods are a

model for this. We read that, in June, 1862, "the successive surprises of the valley campaign had left their mark; he had gained something more than the respect of his enemies. He had taught them to fear his name; and from the Potomac to the Rapahannock uncertainty and apprehension reigned supreme. Not a patrol was sent out which did not expect to meet the Confederate columns, pressing swiftly northward; not a general along the whole line from Romsey to Fredericksburg, who did not tremble for his own security."

One of the most important qualities is unselfishness. If *we* are unselfish, and if we *know that our colleagues are unselfish*, that will go a long way to raising every one's spirits and insuring that all do their best. We must "play the game"; play for the side and not for ourselves. The Germans did this in 1870 with conspicuous success. Perhaps the chief cause of French failure in the Peninsula in 1809-13 was the jealousy between their marshals. The Turks might have won in 1877 if their generals had not been so jealous of each other. The Russians seem to have failed at Heikoutai partly, if not chiefly, owing to jealousy among the higher commands, whereas the Japanese conduct was marked by the supreme unselfishness of all ranks; in fact, to quote Sir Ian Hamilton, "To change our characters, so that we may become less jealous and egotistical, and more loyal and disinterested towards our own brother officers, this is the greatest lesson of the war." \*

We must learn to look on selfishness as the most deadly enemy to success. A small war, such as our last war in South Africa, may foster this miserable feeling, but there will be no room for it when we are fighting for our national existence. Hand in hand with unselfishness go loyalty to superiors and trust in one's subordinates.

It is well, also, to remember Wellington's remark touching Craufurd's action on the Coa 24th July, 1810. "If I am hanged for it, I cannot accuse a man who I believe has meant well, and whose error is one of judgment and not of intention; and, indeed, I must add, although my errors, and those of others also, are visited heavily upon me, that is not the way in which

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\* "Staff Officer's Scrap Book," ii. 46.

any, much less a British, army can be commanded" (Supplementary Corr., 31st July, 1810).

With regard to the troops, their moral power may be increased by initial successes, and by getting them to trust their leaders. Thus, the Confederates under Stonewall Jackson learned to trust him to such an extent that they cheerfully underwent difficult and trying marches, of which they did not know the object, as they had found that he knew what he was about, although he did not let them into his secrets.

Good staff work will foster the troops' moral, for it will work out moves so that they are not paraded too soon (unnecessarily early for a march, etc.); also, a general who knows his own mind, and a good staff who will see that his plans are carried out, will avoid needless orders and counter-orders, needless marches, useless attacks, etc., all of which tend to upset the men's moral. Officers should always be cheerful under hardships and dangers, and never show their fears even if they feel them. If the troops are of an excitable nature, like the French, their moral may be raised by proclamations such as Napoleon used to issue; and, although this is not supposed to be a British trait, this point is worth bearing in mind, for it falls to the lot of the British officer to command men of many diverse races. It is, perhaps, worth bearing in mind, that, although we should try to establish amongst our men a feeling of well-founded superiority over the enemy, yet at the same time we must not fall, or allow them to fall, into the grave error of despising the enemy without reason. We may think with justice that we have reached a high pitch of efficiency, but we can seldom reckon safely on the enemy not having reached the same level.

With regard to training, Clausewitz, putting moral forces before all else, says, "we should practice bodily fatigues, less to accustom the body than the mind to them."

We have said above that we must try to foster the troops' moral by initial successes. And one success will probably lead to another; for the success itself, by raising our moral, increases our force. Now, to attain success, our great aim is to bring superior numbers to the decisive point; but in discussing numbers, Clausewitz says that of course to bring superior numbers to the decisive point is a question as a rule of time and space.

"But the calculation of time and space, although it lies universally at the foundation of strategy, and is to a certain extent its daily bread, is still neither the most difficult nor the most decisive one. . . . The right appreciation of their opponents, the audacity to leave for a short space of time a small force only before them, energy in forced marches, boldness in sudden attacks, the intensified activity which great souls acquire in the moment of danger, these are the grounds of such victories" (as beating several opponents in succession, *e. g.* Cross Keys and Port Republic, the campaign in Italy in 1796, the battle of Ostrolenka 1807); "and what have these grounds to do with the ability to make an exact calculation of two such simple things as time and space?" Clausewitz goes on to show that numbers are not everything. Surprise is one of the great factors in war: it may enable us to bring superior numbers to the decisive point; but, quite apart from the question of numbers, surprise may be a great factor of success in itself.

Again, with regard to numbers and moral, Clausewitz says, in his Summary of Instruction for the Crown Prince, under the heading "Strategy," "The first and most important maxim which we can set before us, is to employ *all* the forces which we can make available, with the *utmost* energy. . . . Even if the result is tolerably certain in itself, it is extremely unwise not to make the utmost efforts to make it *perfectly certain*; for these efforts can never produce injurious effects. Let the country suffer ever so much by it, no disadvantage can arise from that, because the pressure of the war is the sooner removed. The moral impression produced by vigorous preparations is of infinite value. Every one feels certain of success; this is the best means of raising the spirits of the nation."

Preparation includes education of the army and people. Then the general can contemplate retreat and temporary surrender of territory should such be advisable (as Moltke was able to in his projects for war with Austria). For the people will realize the value of concentration. The diversion of the Russian cruisers off the Japanese coast caused no popular clamor in Japan, detrimental to the strategic concentration of the Japanese forces; a remarkable contrast to Wellington's situation in

August, 1810, and in May and June, 1815; also to the feeling along the American coast in 1898.

In considering the chief moral forces, our thoughts may stray instinctively to material things, which affect the moral. Thus, food, clothing, numbers, superior weapons, all affect the moral, although they are solid material things. But this apparent straying from the point is not surprising. In fact the moral and physical are inseparable in considering war; and if we start discussing one, we are almost bound to stray into the other. And, as Clausewitz says, it is mere pedantic theory to attempt to treat one without the other. For "the effects of the physical forces and the moral are completely fused, and are not to be decomposed, like a metal alloy, by a chemical process." He says, therefore, that the subjects which he treats of in his book "On War," "are composed half of physical, half of moral causes and effects, and we might say the physical are almost no more than the wooden handle, whilst the moral are the noble metal, the real bright-polished weapon."

It is obvious that as moral is predominant in the conduct of war, war must be regarded as pre-eminently an art and not as a science. True, the art of war involves a certain amount of science, just as music, sculpture, and painting; and perhaps a greater knowledge of the science is requisite in tactics than in strategy. Speaking of the attempts (evidently not confined to the present day) of some people to reduce war to a theory, or science, Clausewitz says that, taking into consideration friction, fog of war, danger, etc., this is absurd. Some one has formed an ingenious theory of war, all on the idea of relative bases. This, Clausewitz says, was "a geometrical result utterly useless." Of the "interior lines" theory he says, "Although this principle rests on a sound foundation, on the truth that the combat, the fight, is the only means of war; still, it is just on account of its purely geometrical nature, nothing but another case of one-sided theory, which can never gain ascendancy in the real world." That is, that though lines and angles have their part, they must always be considered in conjunction with the moral forces. Thus, if we force the enemy to fight with his lines of communication running to a flank, it is not in itself an advantage, as he may win the battle. But the knowledge that he is in a critical posi-

tion and will be driven off his lines of communication if beaten may affect his moral. This loss of moral may affect his fighting power and assist us to beat him. On the other hand, the straits in which he finds himself may make him fight all the harder. From this we see the necessity of correctly judging the enemy's character and moral condition.

In the "sickly artistic conception of war" (Clausewitz) indulged in by the mercenary armies of the eighteenth century, lines and angles assumed an undue importance. But if we take Napoleon's campaigns, the Peninsular War, the American Civil War, the war in Bohemia in 1866, the Franco-German War, or the war in Manchuria, 1904-5, we shall find that it was not the mere fact of being on interior lines, or on exterior lines, that gave the victory. We shall find the victor sometimes employing the one form of operations and sometimes the other. But in almost every case, victory rested with that side which had the best *information*, and the *highest moral*, and which acted with the greatest *vigor, perseverance, and boldness*.

Modern French and German writers are prone to compare and contrast Moltke's "principles of strategy" with Napoleon's. This is absurd. For the principles of strategy are unchanging. Each of these great masters used the means at his disposal and the methods best suited to the conditions of his day, to apply the same great unvarying principles. These principles are few and simple, and as Clausewitz says, people who have not seen war, but merely judge of it by books on tactics or strategy, think that it is simple, and cannot imagine wherein lies the difficulty. "But if we have seen war, all becomes intelligible." We then see that, since the governing factor is human nature, "the simplest thing is difficult."

However, by a careful and correct study of military history, not judging after the event, but trying to realize the doubts and difficulties as they appeared at the time to the commander, we can to a certain extent make up for lack of experience in war. We are all familiar with Napoleon's maxim, "The moral is to the physical as three to one"; and no more remarkable instance of the truth of that remark can be found than the way in which General Robert Lee in the American Civil War, by playing on President Lincoln's fears for the safety of Washington, par-

alyzed for so long the movements of the Federal hosts. But it is not enough to glibly repeat Napoleon's words or note historical examples, if we do not attempt to make practical use of the maxim. Let us take, for example, the great principle of war, concentration for battle. As often as not we find that we have to seemingly fly in the face of this principle, and make detachments. In this making of detachments, as Colonel Kiggell points out in Hamley, two questions have to be answered: (1) Will the detachment assist us to be superior at the decisive point and time? (2) What is the irreducible minimum of strength to be detached? If the answer to the first of these questions is in the negative, then we should not detach. Now, in seeking solutions to these questions, we shall certainly go astray, unless we give due heed to the moral factor—how we can best play on the enemy's fears and anxieties; how we can best surprise him; how best guard against surprise ourselves; the physical and mental state of our own and the enemy's troops, etc., etc.

We read in "Staff Rides and Regimental Tours": "There are four methods of imparting military instruction to officers, and their value may be indicated in the following order:—

"1. Practical experience in front of the enemy in war.

"2. Practical experience on the ground with troops in peace.

"3. Practical instruction on the ground without troops in peace.

"4. Theoretical teaching from books or instructors indoors.

"Every one of these is essential to the creation of efficient commanders, staff officers, and regimental officers in war."

Now, the value of these methods is in inverse ratio to the chance that we have of making use of them. But, by the terms of the "general" and "special ideas," and the information given in those "ideas" and during the exercise itself, the moral element can be introduced to a certain extent in peace maneuvers, and even in staff tours and paper schemes. And unless we learn to master the moral forces in peace they will certainly master us in war. Moreover, as Colonel Haking says, "it should be remembered that the experience of one individual, even in war, is very limited, and that if we hope to master our profession and

become able commanders, we must have recourse to books." Books are within the reach of all. And if, in conjunction with our field service manuals, we study history, and always in the course of that study keep moral in mind, we cannot fail to get some good out of it. On this point Henderson says, "Theory is of two kinds. First, there is speculative theory. . . . Second, there is theory based on the actual experiences of war. Speculative theory is without doubt of very great value. . . . But theory based on experience is the more useful, for it is only by studying the records of the past that we can acquire a true idea of what we may have to face in the future. How, where death reigns supreme, human nature is affected: to what extent training, discipline, and habit may be relied on to counteract the instincts of self-preservation: how leading is to be carried on amid the excitement, the losses and the din of battle, are questions of paramount importance, and no mere effort of the imagination will help to solve them. If we would learn what men can do, and what they cannot do under stress of fire, we must turn to history."\* By that only can we realize "the influence of moral."

To the same effect is the following passage of Colonel Kiggell's: "Every war has its special local conditions; and deductions hurriedly drawn, without due allowance for these conditions, are generally exaggerated, if not altogether wrong. And in the midst of all these bewildering changes there is only one reliable guide, and that is history. From it we may learn, not only the primary factors which have always been the foundation of success, but 'the true direction in which improvement can be maintained.' What are the primary factors? First among them are the moral attributes. . . . Courage, energy, determination, perseverance, endurance, the usefulness and discipline that make combination possible—these are the primary causes of all great success."†

Again, Clausewitz, commenting on the fact that the difficulty in war lies in the execution of principles in themselves simple, says, "In this difficulty of execution a great deal depends on the certainty and firmness of our convictions; on that account

\* Henderson's "Battle of Worth," Introduction.

† Hamley's "Operations of War," new edition, p. 406.

the study of military history is therefore important, because by it we learn the thing itself, we see the development of events themselves. The principles that we have learned by theoretical instruction are only suited to facilitate the study of, and direct our attention to, the points of greatest importance in military history. You must, therefore, make yourself acquainted with these principles, with a view to proving them by a study of military history. But, besides this, the study of military history is the only means of supplying the place of actual experience. . . . Much reading of history is not required for the above object. The knowledge of a few separate battles, in their details, is more useful than a general knowledge of several campaigns."

If in our study of history we seek for what has stood the test of time rather than for what has changed, we shall see the great principles running like a continuous thread through the narrative; and for the study of moral we shall find it advantageous, as Clausewitz says, to study journals and diaries and particular narratives, rather than the leading events.

We have seen that actual war experience is required to put the finishing touches to the true military spirit of the army, and that this spirit will gradually disappear in a prolonged peace; but if the army is the nation, this military virtue may take some time to die out, as the whole nation will have become imbued with it. It can probably be kept up, to a certain extent, as long as there is some one in the army responsible for its training, who has seen war, and can put preparation for war in the first place. The Japanese training manuals since the last war are an example in this respect, laying great stress on moral, danger, courage, fear, etc. They impress on the soldier that even when matters seem to be going very badly, they probably seem to the enemy to be going equally badly or even worse, and that if the soldier does not lose heart the enemy may. Our own Field Service Regulations place moral above everything else in order of importance (*vide* Field Service Regulations, Part I, Secs. 1, 2).

But above all, the nation as a whole must be sound. One can only build an efficient military organization on to a nation which is itself sound physically and morally, as Fichte pointed

out to the Prussians a hundred years ago, when they were smarting under the humiliations following Jena. In other words, war is, as Clausewitz says, a part of politics, and it is only sound politics that can initiate, and conduct, sound war. This lesson, learned by Prussia in the stern school of adversity, and put to practical proof in 1866 and 1870, was not lost on Japan, as the last war in Manchuria showed. If we turn to Hamley's "Operations of War," new edition, we read: "The Japanese owned their extrication from a very difficult situation, in July and August, 1904, to the qualities of energy, endurance, and resolution, which all ranks displayed in such a remarkable degree, and in which they were supported by the *Government* and *people* of Japan. It is in such qualities and such support that the most certain road to victory lies." \*

Apart from the fact that only by adopting some form of universal service, can this country regain the strength commensurate with her duties and responsibilities in the world, and take once more the place in the council of nations, which she held a hundred years ago; apart, too, from the fact that a fleet, in the hands of an island power, is merely a defensive weapon, and that a defensive attitude alone never has won a campaign, and never will do so (even if that attitude consists in blockading the enemy's coasts); apart from all that, few can doubt that universal training would improve the manhood of the nation, by instilling into them ideas of duty and discipline, and, as Athens and Carthage bear witness, nothing caps the moral fiber of a nation so much as absolute dependence on the fleet, the mysterious something which the bulk of the populace in England has never seen, but which (as they think) absolves them from all need to be ready to fight for their country.

We have quoted at length from Clausewitz, but that needs no apology. We must remember that it was the dark days after Jena that made Clausewitz think. Jena brought out men like Clausewitz, and Scharnhorst, L'Estocq, and Gneisenau. These men started German military thought on right lines. The good work, begun by them, was carried on by Moltke. They studied the methods of Napoleon and their own great Frederick. As a

\* Hamley, p. 384.

result, 1866 saw an educated army in the field. The methods of painstaking study and practice which produced the German army are now being applied to their navy. Europe may be suffering from an "optical illusion," as an ingenious writer has recently set forth; but, as long as human nature remains the same, and as long as the balance of power is the only international policeman, war must always be a dread possibility. If we want peace, we must prepare for war. Nothing short of disaster may rouse the slumbering British lion; but we of the regular army, officers' Training Corps, and Territorial Force, can at least follow the example set by Stonewall Jackson in those ten quiet years at Lexington, and try to make ourselves masters of our profession.

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### THE EMPLOYMENT OF CAVALRY IN BATTLE.

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BY LIEUTENANT COLONEL G. DE S. BARROW.

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THERE are three ruling factors in war—the Physical, the Intellectual, and the Moral. Any one or two of these qualities, however highly developed in an army, will never bring a war to a successful conclusion; the possession of all three is essential. A greater development of one will, however, counteract, to a certain extent, a deficiency in either or both of the others. But this is true only to a limited degree. For instance, the most perfect plan theoretically is only actually perfect so long as the army is morally and physically capable of executing it. That army which possesses these three qualities in a greater degree than its antagonist, and at the same time properly balanced, so that the desire does not outrun the performance, will be the victor, as far as it is humanly possible to foresee. There is one other factor, equally present and equally powerful and against which man cannot contend, viz.: Fortune, "that name for the unknown combinations of infinite power."

All that the soldier can do is to leave to Fortune as little as possible, by developing to the utmost the physical, mental, and moral qualities of all those who are placed under his authority.

As regards the material on which the officer has to work, it naturally depends in the first place on the national characteristics. Confining ourselves to a consideration of the question from the point where the soldier first comes in, we find that the physical quality depends on peace training, peace preparation, good staff and regimental arrangements during war (insuring, as far as the exigencies of war permit, shelter, rest, regular rations, and no unnecessary fatigue), and, where mounted troops are concerned, good horse management.

The intellectual quality also depends mainly on the peace training, *i. e.*, good education and training in the various formations and in the military institutions of the country; on a proper system of decentralization which forces men to take their proper share of responsibility and to fit themselves accordingly; and on the moral feelings which inspire men with a desire to improve themselves through sheer love of their work and pride in their profession. And, lastly, we get the moral quality, which on its part is largely based on the other two; for a deficiency in one or both of these will lower the moral tone, just as a consciousness of physical and intellectual superiority does, *per contra*, raise it. Patriotism, national honor, the magnetism of a great leader, and other similar causes also affect it.

Not only is it evident, therefore, that all three factors are necessary, but that they are also interdependent, and must act and react on each other.

In developing the physical and intellectual qualities by a sound system of training we are developing the moral quality also.

There is now and has been at all times a certain number of persons who give an exaggerated importance to the physical factor to the exclusion of the other two. It is the physical factor which is determinate, which can be actually seen, and therefore it appeals more readily to the superficial observer.

In the history of war the evidence in favor of the decisive influence of the moral and intellectual qualities are overwhelming; but human nature is so constituted that it is infinitely more

affected by what appeals to its physical senses than by the abstract forces. A man may be stricken by a mortal malady which, if comparatively painless, will cause him much less active concern than a toothache.

But the axis on which all the other factors—physical, moral, and mental—revolve is human nature. The rifle is still fired by a human finger and the sword wielded by a human hand, and man is *at least* as susceptible to surprise today as history tells us he was 2,000 years B. C.

It is not necessary, however, to furnish arguments here to show that there is still a place for the Cavalry on the modern battlefield. The readers of the CAVALRY JOURNAL are not likely to be influenced by the false prophets who have at all times tried to prove the contrary. I say "at all times" because we find in the year 1543 the French Cavalry armed with the Infantry pike and arquebus, because certain Frenchmen of that period had arrived at the conclusion that in face of the deadly fire of the arquebus shock tactics were no longer possible, and that the only thing to do was to turn the Cavalry into mounted arquebusiers, corresponding to the mounted rifles into which some people would like to convert the British Cavalry in the present day. And we read in Fortescue that "The mounted service had become strangely unpopular with the English at this time (1626), whether because the eternal sieges of the Dutch war afforded it less opportunity of distinction, or because missile tactics had lowered it from its former proud station, it is difficult to say." How surely does history repeat itself!

What it is important for us to know is:—

(a) What *results* may be expected from the tactical employment of the Cavalry with the other arms, and whether these results will be in any way commensurate with the sacrifices which, admittedly, will generally be entailed.

(b) *In what ways* the Cavalry can best assist the other arms.

Let us see what the lessons of the past have to teach us on these points. They seem to bring three main facts prominently to our notice, viz.:—

1. That, as in strategy so in tactics, it is the massed action of Cavalry that produces decisive results; or, as put in "Cavalry Studies," "The war of masses necessitates mass tactics."

2. The extraordinary results attendant on suddenness and surprise, results which on occasion justify a departure from the principle of mass action.

3. That the losses incurred by Cavalry in battle and when attacking the other arms have relatively very little to do with the result.

After the first Silesian war, Frederick the Great rearranged his ideas on the employment of Cavalry, and after the second Silesian war this arm appeared on the stage as a principal character after a long period passed in supernumerary rôles. In short, it was *rediscovered* that Cavalry was an instrument which could decide battles. And this being so, Frederick, with the big ideas of a great soldier, shaped this instrument in such a manner that when it struck it did so with the weight of a sledge hammer. And the Austrians were not long in following his example. At Lowositz, which has been described as a model Cavalry battle of the eighteenth century, 69 Prussian met 71 Austrian squadrons; at Prague 80 Prussian fought against 70 Austrian squadrons; at Kollin Ziethen attacked with 65 squadrons; at Rosbach the 43 squadrons under Seydlitz broke up the whole of the enemy's line; and at Leuthen Lucchesi made a successful attack with 80 squadrons and was then himself borne down by Driesen with 60 squadrons. In order to get an idea of what these numbers meant it may be noted that our Cavalry division of 4 brigades contains 36 squadrons, or, if the squadrons were of the same size as those of the Prussians and Austrians at that period, the equivalent of 48 squadrons.

When circumstances called for it Frederick engaged his Cavalry without any consideration of losses, as at Kollin and at Hochkirch, where it was sent forward, as the Austrian Cavalry was at Königgrätz, in order to save the remains of an army. And Napoleon acted in the same way. With him the object of the battle was the *first thing*, to be attained at all costs. "At Aspern his Infantry was inferior to that of the enemy, he had no reserves in hand to fill the gaps, a hostile counter stroke was

what he most feared. He, therefore, launched 5,000 Cuirassiers against the unbroken Austrian lines. These horsemen did not break through a single battalion, *they left 3,000 on the ground behind them*, but they checked the Austrian offensive till reinforcements could be brought up during the night, and a disaster was averted" (Director's Comments, Cavalry Manœuvres, 1909). Again, "At Wagram it was Napoleon's plan to pierce the Austrian centre. For this purpose he sent forward a mass of horsemen under Bessières against the Austrian infantry and artillery. *The losses were terrible*, and still the Austrian lines maintained their position. But so occupied were they by the furious and repeated charges of the French Cavalry that Napoleon was able to carry out his object of advancing his great battery of 100 guns to close range, and it was this battery which prepared the way for the two infantry attacks which subsequently decided the day" (Director's Comments, Cavalry Manœuvres, 1909). These are instances of where the casualties, terrible as they were, weighed nothing in the balance against the results obtained.

After Aspern and Wagram come Somosierra and Borodino. On the Somosierra was posted the Spanish force of 10,000 or 12,000 men. Sixteen guns were placed in the neck of the pass and swept the road leading up from the plains, which was very steep. The French infantry was deployed for the attack, when Napoleon suddenly arrived on the scene and immediately ordered the Polish Lancers of the Guard to attack up the Causeway. The leading ranks were cut down by the fire of the Spanish batteries, and there was some confusion, but they were soon rallied, and continuing the attack put the whole Spanish Army to flight. "This exploit," says Napier, "so glorious to one party, so disgraceful to the other, can hardly be matched from the records of war." The most significant fact connected with it is not that these Polish Lancers attacked up a mountain pass nor that they put a whole army to flight, but that they were ordered to attack in order to save the delay and the losses which the infantry would have incurred in advancing more slowly over this fire-swept zone! One wonders what some modern-day critics would have said of this charge had it failed. Napoleon would have been worse than a fool in ordering it. As it is, they are silent concerning it.

At the Battle of Borodino the second Cavalry Corps of Montbrun was sent deliberately against the Great Redoubt, and "then," says Marmont, "was seen something unprecedented in the annals of war—a fort defended by many guns and several battalions attacked and captured by a Cavalry column."

The Cavalry "intervenes in the prologue, in the principal act, and in the *dénoûment*" ("Cavalry Studies"). Here are examples of its employment during the opening stages. The Italian Army is deploying for the Battle of Custoza when, on one flank, Bechtoldsheim, with three troops of Cavalry, rides through the Pisa Brigade, already deployed, and falls on the head of the Forli Brigade, which is still in column of route, and which is put to flight in irretrievable confusion (for a more detailed account see "Cavalry Studies," pp. 300-302). On the other flank, Pulz, with fifteen squadrons, charges an Austrian corps of 30,000 men, and, though the actual method of attack is not above criticism, the results are such that these 30,000 men retire to Villafranca, at a distance from the battlefield, and there they remain, too shaken for employment, during the remainder of the day.

It is true that neither Pulz' nor Bechtoldsheim's squadrons were fit for any further use for some time after these exploits, but what did that matter when they had succeeded in placing 30,000 men *hors de combat* at the very outset of the battle? Four years later the French had a similar chance between Vernéville and St. Privat, which they failed to take.

My only reason for referring now to such a well-known action as Bredow's charge is that there are certain points connected with it which cannot otherwise be conveniently dealt with. It was between 1 and 2 p. m. of that long summer's day when the 3rd Prussian Corps had drawn on to itself four hostile Army Corps. The 6th Division (11th and 12th Brigades) is still clinging to its ground, opposed by the whole of the 6th French Corps, of which two divisions are still intact, and is also threatened by the 3rd Corps. The 24th Regiment of Prussian Infantry is extended in a single line of skirmishers from the Rezonville-Mars-la-Tour road to the Roman road. There are no supports, ammunition is low, the men are exhausted. The nearest assistance, that of the 20th Division, cannot be

hoped for before another hour. Vionville must be held. It is essential that the French should not obtain the moral ascendancy of a success in this part of the field before the arrival of reinforcements. It is suggested that the situation might yet be saved by an attack of Bredow's Brigade. Von Bruddenbock, commanding the 6th Division, says "What! Cavalry charge unbroken infantry! Impossible!" Colonel von Voigts Rhetz, C. of S. of 3rd A. C., at first says, "Cavalry charge unbroken infantry! Impossible!" and finally Bredow, on first receiving the order says also, "Cavalry charge unbroken infantry and artillery! Impossible!" However, there is nothing else to be done, it is the last chance, and so Bredow makes his preparations and carries out the attack, the details of which are too well known to most cavalymen to need description here. In spite of the fire with which the brigade was met in front and on the flank from the Roman road during the crossing of the 1,000 yards which separated it from the enemy's line (2,400 yards was the total distance traversed), not more than 50 men and horses were left on the ground. Skillful use was made of the cover afforded by the ground in order to carry out the approach march and first deployment. Had it not been for this the charge would doubtless have failed. Whether the credit is due to Bredow for having utilized the time while he was waiting and doing nothing to reconnoitre the ground in his vicinity, or whether it is due to Voigts Rhetz who pointed out to him the line he had better take, does not very much matter—the lesson remains the same as to the necessity of reconnoitring all the country in the neighborhood of a Cavalry formation while it is awaiting the moment for action.

The chief points to notice with regard to this action are:—

1. That the Cavalry was well to the front, and therefore at hand when required. It had not to be sent for, when it would probably have arrived too late. It was there on the spot, and, according to Kaehler, a whole division might just as easily have been placed there also.
2. The use made of the cover afforded by the ground, the result of previous observation.

3. Everyone seems to have taken it for granted, as so many would do nowadays, that the charge was an impossible one against the French infantry and artillery, and only justified by the desperate nature of the situation.

4. In spite of this belief the small number of casualties incurred during the advance. The total losses out of an effective force of 800 horses was 16 officers, 363 men and 409 horses, by far the greater proportion occurring during the return journey.

5. The effect of suddenness of action and partial surprise, from which great results were obtained with small means; and, finally,

6. The result. The offensive movement of the 6th Corps was stayed, and during the remainder of the day the French did not attempt any further offensive on this side. The situation was saved.

The French official account itself admits that the charge of the German Cavalry had really attained the object of the commander of the 3rd Prussian Corps, that the moral of the Prussian troops was greatly raised by the feeling that a serious crisis had been averted, and that, on the other hand, the moral effect on the French, as well as the material disorder resulting from the charge, was the principal cause of the evaporation on their part of any desire to return to offensive operations throughout the remainder of the day.

Bredow's six squadrons had lost half their strength, and if they had lost every man and every horse it would have been nothing compared with the magnitude of the success achieved.

On another part of the same field and at another hour, *viz.*, about 5 p. m., the Cavalry once more intervened in what was fast becoming a hopeless situation for the Germans. "The 4th French Corps was advancing in great force on Mars-la-Tour, the 10th German Corps was approaching the battlefield, and the 38th Brigade was endeavoring meanwhile to hold the French in check. The brigade had, however, after desperate fighting, been thrown back with a loss of 57 per cent of its strength. The German chiefs look round once again for the Cavalry to save them, and there to hand, near the southeast of Mars-la-

Tour, stands the 1st Regiment of Dragoons of the Guard. It is ordered to charge the advancing French infantry. It is represented to General Voigts Rhetz (not the same Voigts Rhetz as was C. of S. to the 3rd A. C.) that the charge cannot succeed, and his reply is, 'Yes, the regiment will not succeed, but if it stops the enemy for ten minutes only and every man is killed it will have fulfilled its mission!' The regiment receives the order to attack. An officer having reconnoitered to the front reports dense masses of French infantry following after the 38th Brigade. The ground is unfavorable, being intersected by several lanes. The regiment forms columns of troops and moves forward, coming under a heavy fire. Front has to be diminished to column of route in order to get over the difficult ground; then reform troops and wheel into line and attack.

"The enemy's skirmishers run into groups and pour a heavy fire into the ranks of the Dragoons. A mitrailleuse battery also joins in. Result: one-third of its effectives lost to the regiment, and the salvation of the 38th Brigade, together with the aver-tion of all those difficulties and dangers in which its overthrow would have involved the German forces now hastening to the battlefield. Here we have an example of a Cavalry charge delivered over unfavorable ground in order to save, by delaying the enemy, a desperate situation and delivered against an infantry advancing in the full tide of victory. The reinforcement of the 38th Brigade by two weak battalions (equivalent to the utmost number of rifles the brigade could have put into the firing line had it been so armed) would never, under the circumstances, have checked the onward course of the 'dense masses' of French infantry." (Director's Comments, Cavalry Manœuvres, 1909.) The American Civil War is sometimes referred to in order to support the contention that the rifle is always and everywhere more useful than the sabre. I have already alluded to the fallacy of basing all one's military conclusions on *one* war, whether that war be called normal or abnormal; otherwise the sword and lance might well have been discarded in the sixteenth century, if not much earlier. But surely the American War cannot justly be brought forward to prove the ineffectiveness of the *arme blanche*. In a recently published book dealing with the armament of cavalry we find

these words, having reference to the American Civil War: "Infantry on both sides learnt to despise the sword. . . ." Do the facts justify so sweeping a statement? No, they do not. The writer of the above-mentioned book invokes the name of the late Colonel Henderson in support of his own pet theory. But when Henderson's convictions are not in accordance with his own the reason is attributed to "a strange logical hiatus." There is no logical hiatus as far as Henderson is concerned. The truth is he had studied war too well not to know that, however much one may argue about it, there is such a thing as "terror of the cold steel." He tells us of this thing himself more than once. He tells us, for instance, in graphic wording how "250 Virginia horsemen, resolutely handled and charging at exactly the right moment, had the honor of bringing in as prisoners 600 Federals, including 20 officers and a complete section of artillery," besides killing and wounding 154 more while their own loss was only 11 killed and 15 wounded.

In war it is the pitiless *logic of facts*, of the things *done*, not of the things which have not been done or attempted, which outweighs all other logic. The historical examples just quoted (and there are numberless others to draw from if required) are sufficient to establish the validity of the statement that it is the massed employment of Cavalry which must, as a rule, be looked to for decisive results; that suddenness of action (or surprise) on the part of small bodies has sometimes a like effect, though the results will probably be not as far-reaching; and that the question of the losses incurred is quite a secondary one.

It is very necessary, in order to keep our ideas clear on the subject of Cavalry on the battlefield, that we get these three points, especially the last, firmly fixed in our minds.

There are people, however who, while admitting the possibility of the results, provided one has the means, deny the feasibility of procuring these means, because of—

1. The impossibility of posting large bodies of Cavalry, such as divisions, so close to the fighting line that the right moment for action can be seized when it comes.

2. The difficulty of bringing up large masses of Cavalry towards the attacking point, owing to the long range and quick-firing weapons of the artillery and infantry.

3. The intersected nature of modern battlefields; and
4. The absence of a marked objective on which to charge.

It may be replied to these arguments—

1. That they are mere assertions unsupported by facts, whereas the whole of military history up to a recent date goes to disprove them.

2. That they are the same sort of arguments as have been brought up over and over again during the last 500 years and which have just as often been shattered by actual facts.

3. That an examination of the battlefields of the wars of the last fifty years will show that half of them afforded opportunities of posting, in many places, brigades under cover at 1,200 yards to 1,500 yards from the firing line and bringing them up to this in comparative shelter and of deploying for the attack. That which two brigades at Custozza and one at Vionville were able to do, might just as well have been done in each case by three brigades or a division, as far as the ground was concerned.

We admit the difficulty, but we deny the impossibility, of employing Cavalry on the modern battlefield. Had Frederick, Napoleon, and the German commanders on August 16, 1870, been influenced by the *arme blanche* critics of their days, and of the old times before them, Rosbach, Aspern and Wagram would not have been victories; Eylau and Mars-la-Tour would have been bitter defeats.

And as to the absence of a "marked objective." If the long extended lines of to-day, with their supports in rear, do not offer a sufficiently solid objective to Cavalry, the less dense these lines are the more chance is there for the Cavalry to get through them on to the artillery, as Bredow did at Vionville, or on to the formed bodies, as Pulz did at Custozza. It may be possible on occasions to avoid the enemy's advanced lines altogether, and it is quite sufficient to attack the lines in rear in order to check those in front; in fact, this is the more efficacious method.

And whilst on the subject of the "objective" it may be pointed out that Cavalry must have a definite objective in tactical as well as in strategical operation, and that the want of one leads to certain failure. I would instance, with reference to

this, the charges of the Light Brigade at Balaklava and of the 3rd French Lancers at Vionville. In the former case Nolan was the bearer of a written order from Lord Raglan to the effect that the Cavalry was to advance rapidly and prevent the enemy from carrying away the guns (*i. e.*, the English guns taken in the line of the Turkish redoubts). Lord Lucan was so situated that he could not see the enemy or the guns indicated. He said to Nolan, "Attack what? What guns, sir?" Nolan replied, with some asperity, "There, my lord, is your enemy; there are your guns," at the same time pointing, according to Lord Lucan, in the direction of the left-hand corner of the valley, instead of towards the Causeway heights, which was the direction Lord Raglan intended. Nolan's gesture was evidently intended to be a general one; but Lord Lucan chose to interpret it as definite, and, in this way, *i. e.*, owing to the objective not being indicated in a manner which allowed of no misinterpretation, the Six Hundred were sent on their fatal ride.

In the second case, *viz.*, the charge of the 3rd Lancers, we read in the French official account that "the regiment should have received the order to charge 'the Prussian batteries,' but without their being, so it appears, especially designated. . . Unhappily no precise objective had been given to the Colonel. . . . On crossing the Rezonville crest the Lancers had certainly been able to discover on the horizon the batteries of Vionville, but having arrived at 400 mètres from the enemy the two squadrons found themselves face to face with an infantry square without being now able to see any artillery." An attempt was made to change direction to the right, with the result that the extreme left wing of the regiment alone struck the square and suffered very severely, whilst the remainder charged the air only, and finished up in the ditches which lined the main road. The F. O. A. says, "the charge had been delivered into space, whilst at the same time suffering from the effects of enfilade fire, happily of short duration."

The possession of a rifle and the ability to fight on foot have enormously increased the value of Cavalry on the battle-field as well as in the strategical reconnaissance, for it is now able to fill many rôles which were formerly denied it, and of which some of the principal are:—

1. The temporary occupation of a portion of a position pending the arrival of the other arms.
2. The delay of hostile columns marching towards the battle.
3. As a mobile reserve in the hands of the C.-in-C. for the purpose of rapidly reinforcing any portion of his line which is hard pressed.
4. For the counterstroke, when the opportunity is not favorable for mounted action.
5. For the occupation of defiles or strategic points till the infantry can come up.

All being duties in which it cannot permanently replace, but in which it can be of material assistance to, the other arms.

Examples of the employment of Cavalry in some of the duties enumerated above will be found in General Haig's "Cavalry Studies," especially in "The Attock Staff Ride."

There is no question of the employment of Cavalry, mounted or dismounted—it must fight on horse or on foot, and also combine the two methods as the circumstances require, and *when* to use the one or the other form is what we have to practise ourselves in.

But this is certain: if we ignore the power which the possession of a modern rifle gives us and decline to make use of this power when the situation demands, or if, on the other hand, obsessed by the physical factor, we neglect the mental and moral factors and refrain from shock action when the psychological occasion is calling for it, then we shall lose 90 per cent. of our value in war.

"To every thing there is a season, and a time to every purpose under Heaven."

## THE PRIMAL HORSE AND HIS DEVELOPMENT.

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FROM BIT AND SPUR.

HORSEMEN of the present generation are so accustomed to seeing and having to do with the finished product of the equine species that few ever stop to consider from what source in the mysterious realms of nature the primal horse had its origin. For what information we have today upon the subject, the world is largely indebted to Professor Henry Fairfield Osburn of the American Museum of Natural History. Professor Osburn commenced his research into the origin of the horse in 1891, and by reason of a rich endowment by the late Honorable W. C. Whitney, made a few years afterward, was able to prosecute his investigations so successfully as to produce the skeleton of what is claimed to be the original animal from which the present-day horse has been evolved. This specimen, called "The Eohippus," was found in the Wasach exposures of the Big Horn Basin of Northern Wyoming, near the famous Jackson's Hole shooting country. This little animal is but sixteen inches, or four hands high at the shoulder, and each front foot is ornamented with four toes and each hind foot with three. Scientists claim that this animal existed on this continent about three million years ago, and that his habitation covered a stretch of country running from British Columbia on the north to Texas, and probably Mexico, on the south.

Many of the best scientists who have expressed opinions on the subject declare that if there was a race of people of any kind on this continent at the time of the existence of these "dawn" horses, it must have been the mound builders. There is, however, no evidence that this pre-historic race made any use of animals either for business or pleasure. Scientific investigation has demonstrated the fact that at the so-called glacial period, a great number of horses of different sizes existed in different parts of the American continent. Professor Osburn is

it is estimated lasted about one hundred thousand years, not a single horse remained either in North or South America, and that, after the glacial period, horses, or the animals from which they are supposed to have sprung, were found only in a region of country extending from Central Asia over North Africa and down to the southern extremity of South Africa. It will thus be seen that the evolution of this unusual looking, small, four-toed animal into a present-day horse, which had been going on for centuries, was completely arrested, at least so far as this continent is concerned. But the American continent was not the only place where such animals are proved to have existed. Specimens of petrified animals in all respects similar to the one found in Wyoming, and which is believed to have existed at the same period, have been found in France and England, and it therefore must be from them and their descendants that nature evolved the modern horse. At all events he did not develop in America.

It is claimed by scientists that in the evolution of the horse, Nature gradually discarded the toes that were prominent features of the supposedly primal horse and finally the solid hoof of the present-day horse resulted. How many thousands of years were consumed in this process of elimination, no one as yet has been able to hazard a satisfactory opinion.

Just when, and among what people the horse first became the servant and companion of man must necessarily rest very largely in conjecture. The early supposition that the horse originated in Arabia and was first used by the people of that desert country has been exploded by comparatively recent investigation, wherein it has been established by indisputable evidence that horses were used in Africa, Armenia and Asia many hundreds of years before there was ever known to be a horse in Arabia. The first mention made of cavalry horses being used in war was when the Armenian army, in a war with the Medes, about seventeen hundred years before the birth of Christ, were to a large extent mounted on horses. It seems that, at that period, the process of evolution had so far progressed that the horses used were in all respects as perfectly formed as they are today, the chief difference being in their size. Until within the past three hundred years, the average of

all European horses was considerably less than fourteen hands, and many of them were much smaller than this. Without stopping to trace the history of the horse from the time he was first discovered and used in Armenia until a thousand years later, when he was used in Spain and her colonies, it is interesting to determine when and from whence came the horses to the American continent after their forefathers had been obliterated by the glacial period. So far as any historical data is concerned, there is nothing to show that there were any horses in any stage of development either in North or South America from the end of the glacial period until early in the beginning of the Sixteenth Century as all prior species had been obliterated.

Cortez invaded Mexico in 1519 and it was captured by him and his followers in 1521. They took a few horses along with them in their expedition, and it seems probable that some of these horses escaped and were probably the foundation stock which resulted in giving to Mexico a great many wild horses in its early history. In 1539 the Spanish explorer, De Soto, sailed from Florida toward Mexico in search of gold. He had in his command 237 horses, which he had presumably taken from Cuba. In one of his first battles with the Indians he lost twelve horses and had seventy wounded. He died and was buried in the Mississippi River, which he discovered. His followers then resolved to push on westward, and reached as far as the boundary of Texas, when they became discouraged and determined to return and seek an outlet by water. The remaining horses which they had, had not been shod for over a year, and many were lame and unable to travel. These horses were turned loose on the banks of the river; they soon became wild, and it was probably from them and their descendants that the hordes of wild horses that for generations inhabited the plains of Texas and other Southern and Western states, as well as some of the South American states, sprung.

About the only change that has been wrought in the conformation of the horse since he first came into use as a domestic animal, nearly four thousand years ago, has been his size. Such horses as existed in the colonies for a hundred years or more prior to the Revolution, and which were not descended from the wild horses that came from the De Soto expedition, had been

shipped here from Holland and England, and were uniformly small. Thus, in Virginia the average was 13.1; New York, 14.1; Massachusetts, 14.1; Connecticut, 13.3; Rhode Island, 14.1; Pennsylvania, 13.1 $\frac{1}{4}$ ; New Jersey, 14; Maryland, 13.2; North Carolina, 13.1; South Carolina, 13.2, making the general average a little more than 13.2. Animals of such sizes nowadays are regarded as ponies and of insufficient size for use by anyone but children. Partly because of better feed and treatment and partly because of care and judgment exercised in breeding, the size of the horse has greatly increased since the close of the Revolution, as some of the most prominent trotting animals clearly demonstrate, *viz.*: Abdallah stood 16 hands; Hambletonian, 10, 15 $\frac{1}{2}$ ; Electioneer, 15.2 $\frac{1}{2}$ ; George Wilkes, 15.1; Bourbon Wilkes, 16; Robert MacGregor, 15.2; Almont, 16; Daniel Lambert, 15; Maud S, 16; Sunol, 16; Kremlin, 16; Stamboul, 16; Goldsmith Maid, 15; Flora Temple, 14.2; Rarus, 16; Dexter, 15.1; Lady Thorn, 16; Lou Dillon, 15.1 $\frac{1}{2}$ ; Hamburg Belle, 15.1 $\frac{1}{2}$ ; Sweet Marie, 16; Alex, 15 $\frac{1}{2}$ ; Lillian R, 15.2 $\frac{1}{4}$ ; Crescus, 16; Major Delmar, 15.3; Uhlan, 16; The Abbot, 15.1 $\frac{1}{2}$ . With a few exceptions, all the champion trotters have been what are now regarded as small size horses, although they are much larger than the ones in use for business and pleasurable purposes during our colonial days. Experience and observation seems to justify the belief that as regards size and other desirable characteristics, the horse of the Twentieth Century has reached the meridian of its splendor, and it hardly seems possible that nature, in the process of evolution, can do anything more for him.

Some theorists have advanced the suggestion that nature never ceases to improve the animal kingdom as well as the human race, and therefore it is reasonable to suppose that the horse in use a hundred years hence will be a much improved animal over what we deem the finished product of the present day. As viewed by this generation, this suggestion seems to have more foundation from a theoretical than from a practical standpoint. Of course, it is possible that, as times goes authority for the statement that at the end of that period, which on and scientific breeding becomes more universal, some refinement in certain features of the horse may be developed.

But, as a general proposition, it may be stated that the consensus of opinion of practical horsemen is that it is not possible to improve the present day horse as respects size and conformation for the restrictive service for which the different types are adapted. That the future may develop horses of greater strength and greater speed at both the running and trotting gaits than anything we have yet seen, is among the possibilities, although the chances of this being accomplished are decidedly faint as compared with what they were a generation ago. Experience has demonstrated that a horse for road work or for use under the saddle, as well as for racing purposes, that stands from 15 to 16 hands, is sufficiently large. While it would be an easy matter, by the application of the principles of scientific breeding, to increase his size much beyond this, yet it is more than doubtful whether anything would be gained by such increase, and the fact that there has been no practical increase in the size of the horse in this country, at least for nearly or quite half a century, is substantial evidence that he at least serves his purpose.

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## WAR AND THE "ARME BLANCHE."

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From the BRITISH CAVALRY JOURNAL, July, 1910.

MR. CHILDERS, at the beginning of his book, quotes two passages from page 187, "Cavalry Training" (1907), as constituting an epitome of the case he wishes to combat.

The first is: "It will be seen that thorough efficiency in the use of the rifle and in dismounted tactics is an absolute necessity. At the same time the essence of the Cavalry spirit lies in holding the balance correctly between fire-power and shock action, and while training troops for the former they must not be allowed to lose confidence in the latter."

He challenges the assumption (1) that thorough efficiency in the use of the rifle and in dismounted duties is compatible with thorough efficiency in shock action; (2) that thorough efficiency

with the rifle is confined to dismounted tactics; (3) that the essence of the Cavalry spirit is here correctly defined, because he declares it to be, as so defined, a hybrid spirit, impossible to instill and impossible to translate into balanced action.

The second quotation runs: "It must be accepted as a principle that the rifle, effective as it is, cannot replace the effect produced by the speed of the horse, the magnetism of the charge and the terror of cold steel."

He challenges both the form and essence of this; its form, because the words imply that the speed of the horse and the magnetism of the charge are exclusively connected with the use of the cold steel; its essence, because he declares the principle laid down to be fundamentally unsound.

An Introduction by Field Marshal Lord Roberts expresses entire agreement with the author's main thesis. He would not, however, entirely do away with the sword. He recommends a sword-bayonet that can be used on horseback as well as on foot. He grants that mounted attacks may be made against Cavalry caught unawares or against broken Infantry. But he adds his opinion that "all attacks can now be carried out far more effectually with the rifle than with the sword"; presumably by means of mounted fire.

Thus weighty professional support is given to this attack on the principles of Cavalry action as laid down in our training manuals; principles accepted by Cavalry opinion in all armies of today.

The author founds his case chiefly on the South African and Manchurian wars, fought with modern weapons and under present-day conditions. Earlier wars he regards as not sufficiently up-to-date. We are specially bidden to study our own great war.

Following his own advice, he carefully traces the part played by the Cavalry in South Africa, and shows that our successes were mainly due to the rifle. The results placed to the credit of the *arme blanche* are (1) Elandslaagte, (2) Klip Drift, (3) Diamond Hill, (4) Welgevonden; accounting for 100 Boers put out of action, or, allowing for possible unrecorded instances, 200 at most; and, he states, the opportunities lost through overtrain-

ing in the use of the steel and inexperience in the firearm are without number.

He cites, on the other hand, many cases of successful mounted attacks or charges by Boers, Geduld, Vlakfontein, Mooi-fontein, and eight or nine others. These engagements were very like each other. The Boers generally galloped up on to our men, who tried to beat them off with dismounted fire. In superior numbers, they carried our screen of scouts with them, sometimes shooting from the saddle and sometimes not.

It is on his deductions from these Boer charges that Mr. Childers bases his idea as to the right way of handling mounted troops in the attack. The instances he quotes really prove nothing more than that mounted men, if unopposed by swordsmen, can gallop to close range and inflict great loss on parties inferior in strength. In none of these cases were the British armed with swords, with which they could make a counter-attack.

Now, take one of the four British cold-steel charges—Diamond Hill.

Here some sixty or seventy British Cavalry charged at least 200 Boers, and drove them back.

Mr. Childers, counting heads, says that the casualties here practically equaled each other. They did; but he overlooks the object of the charge. It was made to save some guns, against which the Boers were closing in, unstopped by our inferior number of rifles. The handful of swordsmen stopped them at once. At the same time, the moral effect of this counter-attack was very obvious, as a fresh party of the enemy, who had a good opportunity, made no attempt to cut off our men while returning.

This action shows that the *arme blanche* can win against odds. In the instances quoted above, the Boers were as a rule superior in strength.

We may ask: Could not the Boers have done as much or more in their charges if they had been armed with and expert in the use of the sword?

The author fails to prove that a mounted counter-attack with swords, if we had had them, would have been useless against the Boer charges. On page 247 he dismisses the idea somewhat contemptuously. But is the idea so preposterous?

Take the Boer charge at Roodeval; which, under the fire of 1,500 rifles and six guns, on an open plain, though faltering at 300 yards, "stumbled on in fragments to within 100 yards." He says the extraordinary thing about this "piece of brilliant recklessness" was not its failure, but "that it came so near success and met with so little punishment."

The British losses are given as seven killed, fifty-six wounded, and 150 horses wounded.

Mr. Childers is ill-advised to bring forward this example as an argument against the sword. No stronger case could be made for the *arme blanche*.

What would have happened to this line of swordless horsemen, faltering within 300 yards of the British, if Grenfell had had, say, 150 swordsmen to slip into their flank; and how would the value of the 150 swords in this case have compared with that of the 150 rifles? The author gives the Boer loss at roughly 100. There were 1,500 rifles against them. We may therefore credit the 150 rifles with ten Boers.

Apparently, this aspect of the question does not occur to Mr. Childers. He dilates on the British losses, which, according to his account, were caused mainly by fire from the saddle. From these he exhorts the reader to judge "of the moral effect of this form of fire, coupled with the spectacle of the charge balking the aim of the defense."

Surely, the lessons to be drawn from this episode are all in accordance with the teaching of our manuals. These enjoin the use of fire in conjunction with the mounted attack. And what would have been the result had the Boers been steel-armed Cavalry, bent on killing, supported by a battery of quick-firing guns, whose fire would certainly have had a far more damaging effect than that of rifle fire from the saddle?

Mr. Childers derides shock tactics, insisting on the literal interpretation of shock, as mass striking mass.

The intention to kill is the soul of Cavalry action with the *arme blanche*; and it is the sharp point of the steel weapon, in the hand of a skilled and resolute rider, that counts in shock tactics.

Mr. Childers denies that there is any analogy with the bayonet. But it may be argued that, as fire facilitates the move-

ment of the Infantry soldier and clears his way to the bayonet attack, so the speed of the horse, assisted by fire, renders possible the decisive use of the sword. The enemy may refuse to stand, but something has been gained, and we will have at him again, now or later.

Reliance by Cavalry on the rifle alone will not bring decisive results. A strong Cavalry will always seek rapid decision by the sword. A Cavalry weaker, physically or morally, will resort to the defensive power of the rifle. But these tactics cannot give victory; they can only defer the issue. Either we must surrender our will to that of the enemy or at last meet him with the steel.

All Cavalry leaders who have seen war know that only confidence in the steel weapon can keep alive the spirit of eager offense; the longing to get to close quarters. That fact alone would justify the insistence of our manuals on the importance of the *arme blanche*; that fact only would explain why America, Japan and the Continent of Europe still maintain the sword and lance.

The late Colonel Henderson has been freely quoted to support the views of Mr. Childers; but he says in the "Science of War," that the Cavalry soldier must be taught to consider himself as "first and foremost a soldier of the charge and *mêlée*." "If he is not sometimes allowed to lose himself in the exhilaration of a charge, his dash invariably deteriorates."

Mr. Childers thinks that skill with the sword and rifle combined is beyond achievement. Our Cavalry teachers think otherwise. They are men who have seen, practised and studied war, and their opinion is not lightly to be put aside.

It should be remembered that our system of training in the use of cold steel is moving with the times. It is now vastly more practical than in the days before the South African campaign. Ceremonial display has been abandoned. The value of the deadly point is taught. But the lesson of all for Cavalry to learn is that great results in battle cannot be had without loss. Our many little wars, where easy victories are gained at a small price in blood, are apt to make us forget this truth. In South Africa the losses of our Cavalry in action were very few, considering the long duration of the war. Compare them with those incurred in the great Cavalry fights of history. And there is no instance

in the South African war of a British Cavalry charge being stopped by fire.

The arguments of Mr. Childers, his deductions and conclusions, at least show that mounted men can sometimes get home against rifle fire. He thinks that, having got in, they should use the rifle in preference to the sword; and this is where his views clash with those of the Cavalry school of thought.

The charge—we mean the charge with the cold steel—will not be an affair of every day. Occasion must be watched for keenly. It is quick to come, and quicker to go. It will often be prepared by fire, and helped by clever use of ground. But it will only be seized by the quick opportunist leader, and it will only be consummated by horsemen well trained, drilled and disciplined, who are united by the determination to ride in and kill.

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Herewith is a review of this book by the British General Staff:\*

In this book Mr. Erskine Childers maintains, and claims to have proved, that for mounted troops in modern war the *arme blanche* is "as dead as the dodo." The essential points of the theories he advances are—that the rifle is always the master of the sword; that although the latter may be of use on some occasions those occasions are very few, and that even then the rifle can be used instead of the sword, with better results; that it is as impossible for mounted troops to become efficient in the use of both rifle and sword as it is for a man to serve two masters; and that the only way to insure the efficient training of our Cavalry in the use of the rifle is to deprive it of lance and sword altogether. Mr. Childers favors bold offensive action, but always with the object of overwhelming the enemy by fire and never with the object of using cold steel. Cavalry charges he believes in, but not the charge as now understood; in his view Cavalry should charge to "within 5, 10, 50, or 100 yards" of the enemy, and then shoot

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\*"War and the *Arme Blanche*," by E. Childers, with an Introduction by Field Marshal Earl Roberts. London, 1910. Edward Arnold. 7s.6d.

him down, either from the saddle, or dismounting to fire. In the term "Cavalry" he would include all mounted troops, maintaining that all should be armed alike and act on the same principles. Fire from the saddle should be freely used, even, it would appear, when moving at speed, as in pursuit.

Mr. Childers bases his views mainly on the experiences of the South African War, but he quotes the Russo-Japanese War in confirmation, and he claims that the American Civil War and the campaigns of 1866 and 1870-71 also illustrate the truth of his contentions. The fact that a decided majority of the leaders of military thought throughout the civilized world are believers in "the terror of cold steel" is an argument to which he attributes no importance. He is quite satisfied that their judgment is misled either by the glamour of cold steel, or by a mistaken belief that the South African War was abnormal, a view with which he is in entire disagreement.

Before discussing Mr. Childers's theories, it will be well to consider the value of the evidence on which they are based. It has been claimed that his arguments are historically correct. This claim cannot be admitted. He quotes historical facts, certainly, but the deductions he makes from them are his own. Facts, as a great lawyer has said, "cannot lie, but they can and often do deceive." The point which the reader of "War and the *Arme Blanche*" has to decide is whether, in this case, they have deceived Mr. Childers or those who differ from him. Judging by the official training manuals, the ruling military authorities of every civilized nation are numbered amongst the believers in cold steel. Amongst them are many able, earnest and experienced soldiers, by no means all Cavalrymen. They have as deep a knowledge of historical facts as Mr. Childers has. They have even more at stake to induce them to weigh deductions carefully, since they may be called upon to act on them at any moment. They have more practical knowledge of human nature in war to guide them in drawing conclusions from history, and human nature in war is a consideration on which the practical applicability of all military theory depends. Remembering that it is deductions from facts that are in dispute, and not the facts themselves, we cannot think that any impartial reader will be prepared to follow Mr. Childers in throwing the opinions of such men aside as being biased and

worthless. We claim no infallibility for them, but neither do we concede any to Mr. Childers. We cannot agree that Mr. Childers has established his charge of undue bias in favor of the sword, and we cannot see that he is any less open to a charge of undue bias in favor of the rifle. Having said so much as to the value of the evidence to be weighed, we may now turn to the matter in dispute. A careful perusal of "War and the *Arme Blanche*" leaves us under the impression that the difference in opinion between Mr. Childers and our Training Manuals is by no means so great as he seems to think it is. His views on the value of vigorous offensive methods and on the combination of fire power with mobility are, up to a certain point, in agreement with "Cavalry Training." No one is likely to deny—"Cavalry Training" certainly does not do so—that the general principles of fire action are the same for all mounted troops, although the degree of skill with which they may be able to employ those principles must be expected to vary with the duration and thoroughness of the training they have undergone. No one can deny that favorable opportunities for the use of the *arme blanche* are not numerous in modern war as compared with the number of opportunities for using the rifle.

Mr. Childers is not one of those who consider it impossible for Cavalry to charge home, under favorable conditions, in the face of modern rifle fire, and he clearly recognizes the need to charge home in order to force a decision. So far, therefore, no great principle seems to be in dispute. The first real point of difference that we can find between Mr. Childers and "Cavalry Training" is his statement that when Cavalry has charged home it will always find the rifle a more effective weapon than cold steel. The next is the statement that Cavalry cannot be trained to efficiency in both rifle and sword. If the first of these two statements be true it is unnecessary to examine the second, since there would obviously be no further need for the sword if the rifle is always more effective at close quarters. If the second theory be true, we agree that the rifle is so much more generally useful than the sword that the latter should be abandoned in its favor. These two questions are, therefore, worthy of very close consideration. A decision on the first of them seems to depend a good deal on the value of fire from the saddle. If it is really pos-

sible effectively to use the rifle from the saddle at close quarters, we can believe that Cavalry would soon throw away sword and lance in war. If it is not possible, however, then mounted Cavalry without a steel weapon has no adequate means of offensive action at close quarters or of self-defence if surprised when in motion.

Turning to such facts as we have at our disposal we cannot find that the efficacy of saddle-fire has been established. It was used in the American Civil War. It was also used by both sides in South Africa. In both wars its use appears to have been exceptional, while its material effect is stated by those who experienced it in South Africa to have been very slight, although the Boers who used it had had exceptional training, and were probably greater adepts than town-bred soldiers could ever become. The most claimed for it by British officers who used it is that it may sometimes have a useful moral effect.

To fire from the saddle at the halt and in motion would necessitate the prolonged and habitual training of the horse as well as of the Cavalry soldier, and we can find no grounds for a belief that such fire would prove effective, except, perhaps, in the case of individuals in special circumstances. The difficulty in shooting with any degree of accuracy from a horse moving at speed requires no explanation. The difficulty in shooting from a horse pulled up short from a charge and under fire—since the enemy must be presumed to be resisting—does not seem likely to be less.

For these reasons it seems to us that Cavalry, charging on the principle advocated by Mr. Childers, must dismount to fire on reaching close quarters. When the enemy is sufficiently accommodating to leave cover close to him unwatched and unguarded, to which the Cavalry can gallop, and behind which the horses can be left, this operation is feasible. If he does not do so—which we take to be the normal case—it seems to us that it would be more difficult for Cavalry to pull up and dismount in the open, under close rifle fire, than to charge home, led by its officers. It is worthy of note that troops using a rifle cannot be so led. Further, it seems to us that this pulling-up and dismounting at the last moment—even if men could be got to do it, which we doubt—would be likely to prove a very costly proceeding, and that the

enemy, if he could be given a choice, would prefer to meet such a manœuvre rather than a charge home with cold steel.

In considering the question of weapons, it is not sufficient to confine our investigations to the original attack. We must also consider possible counter-attack. For instance, Mr. Childers's analysis of the Boer charge at Roodeval is incomplete. He considers what might have been the value of the steel weapon and a knee-to-knee formation to the Boers, and he concludes that they would have been useless. We agree. The failure of the Boers on this occasion must be attributed to the absence of any moral ascendancy over the enemy. The surprise failed; they had no numerical superiority, and there was no fire preparation except the totally insignificant saddle-fire during the charge itself.

Grenfell met the attack by fire; but if his force had been armed with sword or lance, and trained to rapid manœuvres combined with cohesion, it is an interesting speculation whether he might not have gained better results by means of a "shock" counter-attack. It seems to us that Grenfell's most effective reply to the Boers would have been to meet them by fire from a portion of his force till their attack faltered, and then to clinch the matter by a charge of the remainder with the *arme blanche*.

This is one of the examples quoted by Mr. Childers. It seems to us to show the value of a training in which various tactical methods and various weapons can be utilized and combined. It provides also an example of the failure of Mr. Childers's method, and affords an opportunity of illustrating how an effective use can be made of the *arme blanche* against that method when wrongly applied.

We will next consider an example of the success of Mr. Childers's proposed methods, namely, Bakenlaagte; but before doing so we desire to say a few words as to certain conditions on which the chances of success of any method of attack seem to depend.

Mr. Childers is emphatic in his view that it is not necessary or even desirable for the form of offensive which he advocates, to depend on covering rifle fire or artillery support to enable the objective to be reached. He disclaims the need for any such assistance for his charges, and bases this belief on the invulnerability to rifle fire on the horseman moving at speed.

Here we are in direct conflict with him. We believe that charges against riflemen, whether made as he proposes or with cold steel, can only be successful, in the face of opposition which is not altogether insignificant, if the conditions allow the attack a certain moral ascendancy. This moral ascendancy may result from surprise or overwhelming numbers, but where these conditions are absent it can only be obtained by establishing superiority of fire as a preliminary step. The mere movement at speed aided by saddle-fire is, we contend, insufficient to produce it.

We believe, further, that when once sufficient moral ascendancy has been gained the nature of the weapon with which Cavalry is armed will not affect the chances of its being able to charge home. The question at issue is as to the most effective means of obtaining good results after charging home.

On this point Bakenlaagte seems to offer some evidence. On the British side there was a harassed rear-guard which had been withdrawing for many hours in the face of vigorous attacks, and was, in addition, facing a cold driving rain. On the Boer side we have the arrival of reinforcements at the critical moment in sufficient strength to give it an overwhelming numerical superiority. The arrival of these reinforcements was quite unknown to the British till the charge actually took place, so that a certain element of surprise was introduced.

For the details of the action we must refer the reader to the *Times* "History of the War" and the map contained in that work. According to the author of this account, Botha initiated his charge at the very moment that he saw the British rear-guard rise and mount in order to withdraw from Ridge A to Gun Hill. The moment was admirably chosen, and the circumstances all contributed to increase the *moral* of the attack while reducing that of the British rear-guard.

As to the opposition encountered, we read that Greatwood's and Lynch's detachments of the Buffs (infantry) were overwhelmed between Ridge A and Gun Hill, the Boers "dropping a few men to disarm their prisoners." It is a small point, but we doubt whether this slight weakening of the attacking force would have been necessary if these detachments had been ridden over, say, by a Lancer brigade.

The description of the remainder of the charge is worth

quoting in full: "With scarcely a check the charge continued; it caught, swallowed up and captured both the covering sections of Scottish Horse and Mounted Infantry, and ended finally in the hollow at the foot of Gun Hill. This was dead ground both from Ridge B and Gun Hill, and here the Boers flung themselves from their ponies and pressed on foot up the hill, firing and shouting as they came."

No account could illustrate more clearly the essential difference between Cavalry action and that of Mounted Riflemen. The Boers, in the full tide of success, judged it necessary to dismount at this critical moment. The result was that they were obliged to enter into a fire struggle which lasted twenty minutes before the hill was captured. We are told that during that time "no reinforcements reached the hill," and that the only counter-attack attempted during the action was an effort made by two companies of the Buffs under Major Eales, after the hill had been captured, when the conditions were entirely unfavorable; but it is easy to conceive what a difference the twenty minutes' delay in the attack might have made in the results of the day.

We claim that a Cavalry force as ably led would not have dismounted at the foot of the slope and afforded the enemy the opportunity to recover his initial disadvantage. We are told the dead ground reached to within thirty yards of the British firing line. We do not believe that a charge of disciplined Cavalry which had reached the foot of the slope would have pulled up, or could have been stopped by fire in the last thirty yards. We must remember the absolutely overwhelming numbers and the elation of the initial success. In our opinion Cavalry handled on the principles inculcated in "Cavalry Training" would have ridden over the hill inflicting many casualties on the British on the way; the original line would have swept on to the farm at Nooitgedacht, and spread consternation and havoc amongst the convoy, while the supporting squadrons dealt with any resistance that might be left in the defenders of the hill. In fact, a partial success might have been turned into a complete victory.

Our conclusions from the facts of Bakenlaagte are that the success was due to causes other than the armament of the Boers and the formation in which they charged, and that the limitations

in the measure of the success is evidence in favor of the *arme blanche* and of the methods laid down in "Cavalry Training."

It may be claimed that if the Boers, armed as they were, had not halted they would have gained a complete success. The reply seems to us to be that they would not have halted if they had been armed with steel and trained to depend on it under such conditions.

In fact, the example we have just quoted illustrates an important virtue claimed for the *arme blanche*. The tendency of human nature under fire is to seek cover and hold on there, since to rise from it increases the danger. This tendency works in two ways when both sides are under heavy fire; just as the defending side inclines to hang on in its trenches, so the attacking side tends to remain under cover and to seek to shoot the enemy out of his position without exposing itself. If proof of this tendency under modern conditions is required, a study of the operations in Natal for the relief of Ladysmith will afford it.

The chief reason why Infantry soldiers are given a bayonet is to foster in them the desire to close with the enemy. They are taught that this must be their object and that the primary use of fire is to assist their forward movement in the direction of the enemy with a final bayonet charge in view. The actual amount of killing done by the bayonet in modern war has been comparatively small. After South Africa many theorists recommended its abolition. Yet deeper thinking has led to the conclusion that the moral effect of the bayonet is out of all proportion to its material effect, and not the least important of the virtues claimed for it is that the desire to use it draws the attacking side on. This theory has been accepted by those best qualified to judge by experience of human nature in war. There seems to be a great similarity of thought between those who favored the abolition of the bayonet and those who desire to deprive Cavalry of the *arme blanche*. We also think there would be a similarity in the results. To take the sword from Cavalrymen would be, to some extent, to take away their desire to close—to encourage them to seek for effect by long-range fire. It might constitute a serious obstacle to the realization of Mr. Childers's methods of charging.

This encouragement of an offensive spirit is one effect of a steel weapon. What is its effect on the enemy? Is the "terror of

cold steel" really a myth? On this point let us examine, for example, the battles of Wœrth and Gravelotte. Time and again the Germans held on to the ground they had won under a devastating fire. Time and again they fled before French bayonet charges, without awaiting them. Are foot soldiers charging with bayonets more terror-inspiring, or more difficult to stop by bullets, than charging Cavalrymen, who believe in their ability to charge home?

Mr. Childers may not agree in the value of examples taken from a war which was fought before the introduction of the magazine rifle, but if the magazine rifle is to be upheld as a nerve soother where cold steel is concerned, we must not ignore the effect of the same weapon in producing nerve tension when in the hands of the enemy. We hold that this attribute of the magazine rifle will in reality tend to maintain if not to enhance the terror of cold steel in the battles of the future. In fact, we look to the magazine rifle to produce the situations in which the fear of cold steel will give us the victory. This is indeed the basis of all modern tactics.

Although we maintain that the *arme blanche* is by no means obsolete, it must be admitted that if Mr. Childers's contention could be upheld as to the impossibility of training Cavalry to the efficient use of both rifle and cold steel, there would be a strong case against the retention of sword or lance. The arguments given in the foregoing pages refer more particularly to the battlefield, on which the results of all military operations are decided. Even on the battlefield, however—still more in the operations preceding the battle—it cannot be denied that for one opportunity of using cold steel effectively there will be many of using the rifle. For this reason there can be little doubt that, if Cavalry cannot be made efficient in both weapons and must be restricted to one, that one should be the rifle.

Mr. Childers maintains that experience shows that Cavalry cannot be trained to both weapons. He appeals to history. Has history spoken definitely on this problem? In what campaign, up to date, has Cavalry been employed that had been carefully trained in the use of both weapons? We are not aware of one. The Boers were not trained in the use of the *arme blanche*. Our own Cavalry in South Africa had not been seriously trained in the use of the rifle. It was armed with an inferior firearm, and had fired

a few rounds with it annually, but rifle shooting and rifle tactics held a very different position in its training, and in its regard, from what it holds now.

Mr. Childers quotes the American Civil War. In his reference, however, to this war, he omits to mention that, although a rifle was added to the equipment of the United States Cavalry soldier shortly after the war commenced, the sword and revolver for use at close quarters were not discarded, and that this equipment, as a result of the experience gained in the American Civil War, has been retained ever since.

It would be out of place here to discuss the merits and defects of the breech-loading pistol in addition to or in substitution for the *arme blanche*, as the main point is whether the mass of the Cavalry employed in that war was trained at all before the war.

It is useless to claim that history has given a final verdict on this problem. So far as history has spoken, its voice appears to us to be in favor of the possibility of Cavalry being trained to use both weapons, *i. e.*, the rifle and the *arme blanche*. Our Cavalrymen, trained to *arme blanche* work, adapted themselves, with considerable success, to the use of the rifle in South Africa. Although there seems to be a good deal of popular misapprehension on the point, Cavalrymen used the *arme blanche* freely in the American Civil War, and it appears that the use of it tended to increase as the war went on; they also used the rifle with considerable efficiency.

We believe that Cavalry which is capable of using either weapon, as occasion may demand, will be more useful in war than Cavalry which can only use one of the two. We believe that the possibility of becoming efficient in both must remain a matter of opinion until Cavalry which has been carefully trained to both has been fully tried in war. And we believe, meanwhile, that the opinion of experienced Cavalry officers on training is a safer guide to follow than the opinion of Mr. Childers. Their opinion is that regular Cavalry can be trained to both. It must be remembered that our present peace training aims at producing dash, cohesion, and discipline, combined with an offensive spirit and good horsemanship; and that, even if Mr. Childers proves correct in his views, the time spent in inculcating these qualities cannot be said to have been thrown away unless it can be proved that the

training in fire tactics has been neglected in consequence to a dangerous extent.

The truth seems to be that the real difficulty of the problem lies less in training the men to be capable of using both sword and rifle than in educating their officers to judge rapidly which weapon to employ at any given movement. No doubt errors of judgment must be expected in this matter, as they must be expected in all operations of war; but we cannot afford to abandon a valuable weapon for that reason. Moreover, it does not seem to us that there will be much—if any—more difficulty in judging when to charge with the *arme blanche* than there would be in judging when to undertake the style of charge that Mr. Childers recommends.

The judicious selection of opportunities for, and the skillful execution of, a charge undoubtedly call for much previous study, thought, and practice; but, so far as our regular Cavalry is concerned, the necessary attention can, and will, be given to the problem. Professional officers, and men who serve for seven or eight years with the colors, have both the time and the opportunity to learn. It is different with our mounted troops other than regular Cavalry, however. There can be no reasonable doubt that neither the officers nor the men composing these troops can learn the use of both rifle and *arme blanche* in their short peace training. This being so, it seems obvious that they should train in peace with the rifle only, that being far the more generally useful arm.

It may be argued that it is illogical to claim that the *arme blanche* gives additional power to Cavalry, and then to recommend that mounted troops, other than Cavalry, should be armed with the rifle only. The reply to such a contention is that Yeomanry and similar bodies of troops, who train only for a few days in the year, cannot be expected to meet highly-trained regular Cavalry on equal terms, however we arm them; and matters cannot be equalized by any increase in the number of weapons they carry. On the whole they will stand a better chance armed with one weapon which they have acquired some skill in using, than if they had more than one, were unskillful with each, and lacking in judgment as to which to use. Moreover, there are other factors which considerations of space forbid the discussion of here, such as the nature of the country that Yeomanry are primarily intended to

fight in, the nature of the duties that would be allotted to them in war, and the possibility of arranging for them to work with regular Cavalry, thus combining fire power with the sword. Moreover, if time were available after embodiment, it would be possible to equip Yeomanry with the sword and to instruct them in its use.

The combination of the power of the two weapons seems to us the ideal to aim at, and we cannot agree that it is beyond our reach.

It may be that there is sometimes a tendency to favor training with the steel weapon at the expense of training with the firearm. We agree that this is unsound, but we do not agree that it is necessary to take away sword and lance altogether in order to correct this tendency, and we think that in proposing such a remedy Mr. Childers has rushed into the extremes that he complains of in others.

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## THE REVOLVER AS A CAVALRY WEAPON.

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BY MAJOR MOLYNEUX, D.S.O., TWELFTH CAVALRY.

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From the JOURNAL OF THE UNITED SERVICE INSTITUTION OF INDIA, July, 1910.

IT may be safely asserted that the revolver is not much in favor with cavalry officers; and it is unfortunately true that their districts is only too well founded. The reason is not far to seek: real proficiency with any firearm is impossible without the expenditure of a good deal of time, money, and ingenuity, and the revolver has been, and still is, the most neglected of our firearms, never having received a tithe of the attention lavished upon the rifle by the cavalry and infantry, or upon their own weapons by the artillery.

I have often heard cavalry officers assert that the revolver is almost valueless for mounted use; and the annual exhibition by gun-shy horses and untrained shots only tends to confirm them in that belief.

On the other hand, few will be found to deny the value of

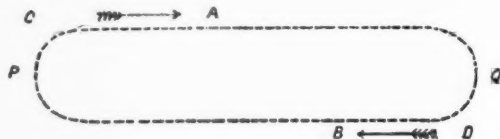
the revolver in the hands of a "Buffalo Bill" who can make a practical certainty of hitting his man, at a dozen yards distance, when riding at any pace.

It is the purpose of this article to show how easily this proficiency can be obtained, by those who are armed with the revolver and consequently bound in duty to obtain at least an adequate degree of skill in its use, if only a fraction of the attention be given to the subject which we give, as a matter of course, to the attainment of proficiency in hitting moving objects with the rifle.

The horse must first be made absolutely reliable, by the use of blank cartridge fired from his back until he takes no notice of it. A convenient method of determining whether the horses are sufficiently steady is to make those armed with revolvers advance in single file, on their way back from parade, firing blank from their revolvers as they advance. It is easy, from the front, to see whether any horse swerves from the covering alignment. If he does, he should be ordered extra practice. Australian horses require very little of this training, Indian country-breds are more troublesome.

The best training for the man is the mounted duel. This is far more interesting, as well as far more useful, than any kind of target practice. It can be carried out in perfect safety by the use of the wax bullets used by the French dueling clubs, provided that proper precautions are used; and the expense is very small, compared with the results obtained. One thousand shots can be fired for about 55 francs, or 34 rupees. The methods of practice which I have found best are the following:

(1) Mark out a track, as under, with a broad line of chalk or tape:



The track to be about 100 yards long by 12 yards broad. The combatants start from C and D respectively; on passing

one another at A and B, they fire at one another at 12 yards distance, continuing to move round the oval track, and firing each time they pass one another.

(2) Using the above track, one combatant fires mounted at the other dismounted; the latter being stationary at A or B.

In both the above practices, the superintending officers station themselves at P and Q, where they can examine the coats, etc., of the combatants at the finish. Hits on the man alone count; hits on the horse count neither for nor against. Regulation revolvers only.

The following precautions are necessary in the case of each combatant, when firing at so close a range as 12 yards:

- (a) A special mask, with plate-glass front, on the head. This has also protection for the neck.
- (b) A small metal shield on the revolver, to protect the right hand.
- (c) A leather glove on the left hand.
- (d) A soft goatskin coat, covered with whitewash, reaching to the knees, split up behind.
- (e) A blanket all over the horse, tied with tape behind his quarters and round his neck; and cheap blinkers.

At first, very few hits will be registered, even at a walk. The improvement, however, is extraordinarily rapid, and the canter will soon be found no more difficult for aiming than the walk.

A list of requisites for this training, with prices, is given in tabulated form below:

2 special masks, with plate-glass front, at 20 francs	
francs . . . . .	40.0
1,000 wax bullets . . . . .	40.0
1,000 caps (appareil d' amorçage) . . . . .	14.25
6 false cartridges . . . . .	18.0
2 hand shields (for pistol hand) . . . . .	8.0
1 uncapping block (appareil pour desamorcer) . . . . .	2.0
Total . . . . .	fr. 122.25 or Rs. 80.

All above may be had from Messrs. Lepage Freres (Piot-Lepage), 12 Rue Martel, 10 ieme Arrondissement, Paris.

The following can be procured locally:

One pair soft goatskin coats, to be whitewashed so as to show the splash of the black wax bullet; cost about 6 rupees each.  
Blinkers.

Eighteen false cartridges, to be copied by any mistri, in brass or iron, from the French pattern.

One pair of false sights to go just over backsight, as wax bullets tend to shoot a little low.

The total cost will thus be seen to be under Rs. 100 (initial). Rs. 70 per annum, expended annually on the 2,000 caps and bullets per regiment which should be ample, with care and supervision, to secure a high degree of skill, is the only recurring expense. It would not seem that the result obtained is dear at the price. £6 10s. for initial expenditure, and £5 per annum recurring, will cover everything. No powder is required, for the cap alone propels the bullets.

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### A NEW GAME.

(IN THE ENGLISH ARMY.)

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From EL MUNDO MILITAR of July 31, 1910, Madrid.\*

THE British army, always working for the physical education of its men, from time immemorial has taken special care to organize instructive games for the troops, with the double object of taking their attention away from pernicious habits, and at the same time developing adequate corporal vigor.

Foot-ball, foot-races and throwing of the discus are practiced in most of the barracks, in addition to the regulation exercise for development of strength and agility in the soldier.

Certain cavalry corps have recently adopted a curious game, an excellent one to familiarize the cavalryman in the manage-

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\*Translated by First Lieutenant W. E. Mould, U. S. Army, Retired.

ment of his horse and at the same time give him needful sport and exercise. This game is called "Aviation Push-ball."

It is played on horseback, employing racquets similar to those used in tennis. The balloon is filled with gas of less density than the air, so that in spite of the weight of its cover, it will remain nearly stationary in the air, or fall very slowly to the



ground. This ball the players, arranged somewhat as in football, endeavor to pass from one to another, evading the resistance of their opponents, and without allowing the ball to touch the ground. Their object is to traverse the opponents' territory with the ball and finally make a goal by driving it through a

large iron hoop which takes the place of goal-posts.

The new game, thus generally described, lends itself to numerous and varied incidents; grand races from end to end of the field, skillful evolutions to pass the opponents' horses and often precarious situation in the saddle when the attention has been fixed solely on the ball, the horse guided with one hand.

Besides these advantages of instruction in riding, the right arm is kept moving constantly in using the racquet to hit the ball and deceive the enemy, and thus receives exercises which will render the soldier very skillful in handling his saber in a charge.

The new game has been very favorably received in the various English cavalry corps, each of which is now organizing its equipment and beginning its training for the first inter-regimental matches soon to take place.

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### THE CHARGE OF THE ALPHONSO JÄGERS AT MELILLA.\*

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An Instance Where Mounted Action and Cold Steel Saved the Fortunes of  
the Day.

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THE 20th of September, 1909, was a glorious day for the Spanish cavalry. A small detachment of intrepid troopers saved a brigade from annihilation and changed defeat of the Spanish arms into success.

Early in the morning of this day General Tovar's Division started from Melilla in a southerly direction for the purpose of punishing the hostile tribes under Beni Sicar, Beni Said and Beni Gugafar. The Brigade Morales (four battalions, two mountain guns and the Jäger squadron of the 21st Cavalry Regiment Alphonso) reached its march objective Taxdirt about noon without having encountered hostile opposition.

During a reconnaissance made in the afternoon the advance

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\*Translated from the *Austrian Cavalry Monthly*, by Harry Bell, M. S. E.,  
U. S. Army.

guard battalion *Cataluna* was fired on from high hills in front. The battalion, though being exhausted by the march, succeeded in taking four of the hostile positions. The *Jäger* battalion had dismounted to fight on foot to the left of the battalion and supported it effectively in its advance. The attack, however, soon came to a stand. The enemy appeared in greatly superior numbers on the left flank of the brigade and forced it to deploy two additional battalions. The battalion *Tarifa* remained in reserve.

The situation of the advance guard battalion became more and more critical; entirely exhausted, without food, and in the hot glare of the sun this battalion was confronted by an enemy who became more and more offensive. Ammunition began to run low and there was no hope of replenishment. There was little hope that the dearly bought position could be held any longer and consequently the battalion received orders to fall back, the squadron to cover this retreat by its fire. The reserve battalion was ordered to relieve the retreating battalion.

As soon as the enemy observed this retrograde movement he threw a force of about 1,500 men on the retreating Spaniards. The rear guard had only their bayonets to fall back on and were soon cut off from the rest of the battalion. The entire annihilation of the battalion, and even of the brigade, seemed unavoidable.

At this critical moment Major General Tovar turned to his adjutant, the young cavalry Lieutenant Colonel Jose Cavalcanti, with the words: "Hurry, Cavalcanti; place yourself at the head of yonder cavalry and charge the enemy."

The squadron, also long since out of ammunition, had mounted in the meantime and stood, unperceived by the enemy, in a narrow gulch. Lieutenant Colonel Cavalcanti galloped to the squadron and took command. Carefully utilizing the cover of the terrain, he succeeded in reaching with his squadron a low hill lying on the flank of the hostile advance, from where the 90 troopers composing the squadron gained a clear picture of the dangerous situation of the battalion *Cataluna*. With a few inspiring words to his men, Cavalcanti gave orders to charge. The squadron threw itself on the enemy, the officers, Captain Alvarez, Lieutenants Gasco, Martos and Prudan being far in front of it. The enemy was completely taken by surprise; he tried to defeat

the attack by irregular fire and by cold steel, mainly endeavoring to disable the horses, but there was no stopping these brave Spanish troopers. The hostile line was pierced and the moral effect of this charge was such as to bring the hostile attack on the infantry battalion to a stand.

The squadron had no sooner rallied than a renewed rallying of the Moors was observed. The squadron, this time but 40 troopers strong, did not hesitate a minute to charge again. This second charge brought the Moors into complete disorder and as just then the leading elements of the battalion Tarifa arrived on the scene of battle and as also the mountain guns went into action the hostile offensive was completely broken. But the Spanish troopers did not content themselves with what they had so far achieved, for with the remaining 18 troopers the squadron attacked for the third time and thus put the enemy completely to rout.

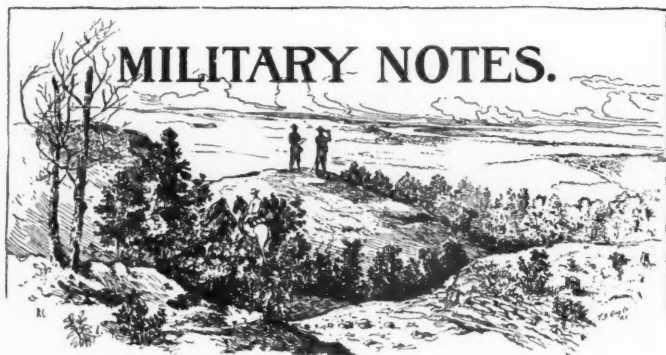
The squadron, the horses of which had been for more than 14 hours without food or water, lost eight killed and seventeen wounded; the enemy lost more than 100 men, all of them being killed by cold steel. It was a splendid success: an entire battalion was saved from annihilation and the original defeat of the brigade was changed into victory by this action of the cavalry.

The day of the Taxdirt was decided not by the Mauser rifle nor by quick firing artillery, *but by the sabers of a well led and well schooled squadron.*

All honor to the brave Alphonso Jägers.

C. H.





### THE CAVALRY EQUIPMENT BOARD.

THE work now being done by the Cavalry Equipment Board at the Rock Island Arsenal is probably the most important peace project that the cavalry arm has been concerned with for years. A realization of this fact is growing throughout the cavalry service and many important recommendations have been sent into the board. While it is entirely too early for the board to make any announcement as to its recommendation of any particular device in exact detail, it has made splendid progress along the line of reducing weight of equipment and at the same time has had much success in tests of devices which will solve several problems which have heretofore proved most vexatious. In fact, the outlook for a surprising improvement throughout the equipment is most promising. Certain articles which have been decided upon tentatively will be sent out for use at some of the maneuver camps and on certain practice marches before the expiration of the present season.

The recommendations which have been sent in to the board present so many different views as to the utility and the method of using certain articles of equipment, that cavalry officers can

scarcely expect to find all of their ideas adopted by the board. Such recommendations as are finally made will be based upon trials and tests of the most thorough nature, under the direct supervision of the board.

It will be interesting to the cavalry at large to note that recommendations which may be considered radical have been submitted to the board by officers of considerable experience. Among these suggestions are: to utilize the saber as a bayonet by a device attaching the saber to the rifle when necessary; to provide each trooper with an intrenching tool, the champions of this policy claiming that the mobility of cavalry need not be reduced by the addition of this equipment and by its possession the cavalry will be given, in addition to its greater mobility, every quality of offense and defense possessed by any foot troops. Another proposed departure is to dispense with the gun-sling in order to do away with its weight and in order to better utilize an excellent method of carrying the rifle mounted, adequate provision being made for the existing convenience of the gun-sling as a method of carrying the rifle on the person when the soldier is engaged in tasks requiring the use of both hands, such as carrying wood, forage, etc. A nose-bag has been devised which promises much better results than are obtained with the present model and which may also be used as a grain-roll, by means of which noon-feeding on the march will be facilitated, thus meeting the growing demand for three feedings per day for the cavalry horse.

The board feels confident of producing an equipment which will eliminate the sore-back evil and will at the same time provide a full pack, which will not only be much better arranged than the present pack as to convenience and weight, but will be very superior in appearance. With this hopeful prospect before the board, all officers of the cavalry arm should continue to give the subject of equipment earnest thought and a great deal of discussion, communicating freely and directly with the board, to the end that the new equipment may represent the most finished degree of excellence.

PROPORTION OF NEW HORSES ASSIGNED TO  
FRENCH MOUNTED REGIMENTS EACH YEAR.

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BY AN OFFICER ABROAD.

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CIRCULAR of January 2, 1910, prescribes that the replacing of horses in the cavalry, artillery and service schools shall hereafter be made at the annual rate of 2.17 of the total strength, instead of 2.16, as has for a long time been the rate. In other words, each mounted organization having, say, an effective of 68 horses, is entitled each year to receive eight new horses.

Every autumn the captain of a troop or battery selects, up to the number of his allowance, the horses in his organization least fit for service. These he presents to the colonel of the regiment for inspection. If he approves the selection, these horses are condemned and sold as with us. A requisition is then made by the colonel on the depot charged with remounting his regiment for the total number of horses to which the regiment is entitled. These are sent, and the colonel distributes them amongst his organizations, and then each captain begins the education of these new horses and continues it for nearly two years, when they are considered as fully grown and trained. As the horses are bought at 3 years and receive one year's training at the depot before being sent to a regiment, it can be seen that when a horse is turned in for full duty and assigned to a trooper, he is between 6 and 7 years old and has had three years of careful progressive training.

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THE HORSE'S PRAYER.

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(Associated Press Telegram.)

PITTSBURG, July 28.—A square deal for the horse is the petition which the Western Pennsylvania Humane Society has put into a fervent equine prayer, and has posted in stables all over the city. It reads in part as follows:

"To thee, my master, I offer my prayer:

"Feed me, water and care for me, and when the day's work is done, provide me with shelter, a clean, dry bed and a stall wide enough for me to lie down in comfort. Talk to me. Your voice means as much to me as the reins. Pet me sometimes, that I may serve you the more gladly and learn to love you. Do not jerk the reins, and do not whip me when going up hill. Never strike, beat or kick me when I do not understand what you want, but give me a chance to understand you. Watch me, and if I fail to do your bidding, see if something is not wrong with my harness or feet.

"Examine my teeth when I do not eat. I may have an ulcerated tooth, and that, you know, is very painful. Do not tie my head in an unnatural position, or take away my best defense against flies and mosquitoes by cutting off my tail.

"And finally, oh my master, when my useful strength is gone, do not turn me out to starve or freeze or sell me to some cruel owner, to be slowly tortured and starved to death; but do thou, my master, take my life in the kindest way and your God will reward you here and hereafter. You will not consider me irreverent if I ask this in the name of Him who was born in a stable. Amen."

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### THE HORSE SUPPLY OF ENGLAND.

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(From *The Broad Arrow* of August 12, 1910.)

THE Secretary of State for War is very fond of expressing the opinion that the whole question of our horse supply teems with controversial points. In the report of the Royal Commission on Horse Breeding, now presented after an interval of considerably more than two years, two matters at least are particularly brought to notice whereon the Earl of Granard and his colleagues are absolutely unanimous, and in regard to which they certainly have the support of the bulk of expert opinion. The commissioners again draw attention in the current report, as they have done in former ones, to the fact that since the agents of foreign powers buy our horses suitable for

military purposes at the age of three years—and, it might be added, pay for them prices remunerative to the breeder—the best of the remounts have been sold out of the country before the British authorities come into the market at all. The commissioners express their regret, in which we share, that these repeatedly expressed views have been systematically disregarded, with the result that the difficulty of providing suitable army horses has not been lessened.

Attention is again invited to the totally inadequate sum, £5,100 per annum, voted by Parliament for horse-breeding, and it is stated that all the efforts of the commissioners to help the breeder are frustrated by lack of means. Mr. Haldane is one of those people who, having the bump of caution rather largely developed, would proceed by gradual and progressive but dangerously slow steps. He would first have a horse census, conducted in an amateur fashion by the county constabulary, then he would find out how many horses he really requires for the army, followed up by an elaborate calculation of class deficiencies. After this the whole question will be referred to the County Associations for report to the War Office. If we had plenty of time such cautious measures would no doubt be wholly admirable, but meanwhile, as pointed out by the commissioners, "the difficulties which confront an interest of so much importance to the welfare and even the safety of the nation are increasing every year, and with every day's delay in dealing with the question they will continue to increase more seriously in the future."

The census of horses that is now being taken by the War Office is probably not worth the paper it is written on, and serves only as an excuse for delaying matters as long as possible. It is fairly well known how many horses of sorts exist in the United Kingdom, but the absurdity of the thing is that the police and other people who are entrusted with the work of classifying the horses on the cheap know little or nothing about the work that has been thrust upon them with practically no remuneration. As to subsidies, the paltry sum of about £5,000 is all that Parliament is asked to vote annually, so anxious is the government to save money for its Socialistic schemes. In short, the commission declare that no efforts on their part will be of the slightest use in formulating schemes unless adequate funds are pro-

vided to carry them out, and in the meantime further delay is only increasing the future difficulties we will have to contend with should we be involved in a serious war. It is all a question of money, and, to put the case in a nutshell, our vote of £5,000 for horse-breeding purposes contrasts in a scandalous degree with the £250,000 and the £180,000 provided by the German and French governments respectively for improving the class of horse that is necessary for military purposes.

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#### THE ORGANIZED MILITIA OF ENGLAND.

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THE *Territorial Forces* of England, which correspond in many respects to our organized militia, have been having recently their course of annual training. This year they consisted of a series of "*invasion manœuvres*, and from its published accounts of them it would appear that they have their troubles, as in this country, with complaints as to their management, etc. The following extracts regarding them are from the *Broad Arrow*.

"The Territorial training this year was more like the real thing than usual, and, by a curious coincidence, never have there been so many complaints. It is hardly the fault of the men that many of them seem to have imagined that they were out for a pleasant picnic. They have been taught that soldiering can be acquired with ease. Hence their disillusionment and consequent indignation. The result is likely to be a further reduction in the numbers of the Force. Men who have no stomach for roughing it in any form are not much loss, it is true, but there is reason to believe that there are many others who have good grounds for complaint. It is not to the conditions they object, but to the manner in which the War Office provided for them. In fact, they accuse the authorities—not, perhaps, for the first time—of mismanagement. Independent witnesses, indeed, admit that the state of some of the camps were deplorable. The attempt to treat the Territorials as if they were seasoned soldiers gives the most reasonable ground for criticism. The same principle was applied to them which is so disastrous to education in civilian

life. They were to acquire military fitness, not by the slow processes of training, but all at once. They were to demonstrate to scoffers that they were more than the raw material of soldiers, they were almost equal to the finished article. In short, they were to justify the military policy of the present government.

"The limit of endurance in forcing the body is sooner reached than the limit of endurance in forcing the brain. The Territorials, in spite of their zeal and energy and spirit, have not been able to play the part of professionals. They were good amateurs, but there was no mistaking the fact that they were amateurs. That the truth should come out in this particular way is a good thing. The Territorials at last know by bitter experience the difference between themselves and the Regulars, and no amount of smooth talk from political platforms will ever again mislead them. They are civilians who, for the most part, lead sedentary lives. To suppose that they can, without any hardening process, march and bivouac exactly like trained soldiers is a miscalculation so gross as to be dangerous. It has been honored long enough. Let us have a few more annual exercises in which the Territorials are asked to act as Regulars, a few more annual exercises in which official optimism is put to the test, and the shams of our military system will be no more tolerated.

"Judging from the accounts which have been received of some at least of the Territorial maneuvers carried on in the south, the staff work seems to have left a good deal to be desired. We hear of units and even columns crossing each other on the march, owing, no doubt, to calculations of time and space not being reckoned with the necessary margin which should be allowed for insufficiently trained troops. We hear also of the baggage and supplies of the invaders being permitted to push unconcernedly through the columns of the defenders and of responsible staff officers unaccountably forgetting to notify in orders where units were to draw the next day's supplies. If the Territorial Force furnished its own staff one might be inclined to make allowances for shortcomings due to inexperience or lack of proper staff training, but with the whole of the staff of the Force provided by the War Office we have a right to expect that mistakes which would not be tolerated for one moment in the

operations of the Regulars should not be permitted to add to the **difficulties incidental** to the maneuvers and training of a purely citizen army.

"Strictures have also been passed upon the marching powers of some of the London battalions, but from inquiry it appears that those which are particularly singled out for adverse criticism had been bivouacking in the open for two consecutive nights, and had in three successive days been called upon to march an average of eighteen miles a day. This is a good deal to require of men, many of whom are mere boys, and nearly all of whom follow for fifty weeks of the year purely sedentary occupations, whilst even in the preliminary period of this year's training they had not been directed to 'break in' themselves, and their feet, for a marching strain to which they are quite unequal without proper preparations. These men, moreover, were carrying, in addition to their ordinary equipment, their greatcoats and mess tins, so that the fact that some units were, on the third day, marched to a standstill is perhaps less a matter of surprise than that the directing staff should have utterly failed to grasp the limitations of town-bred soldiers.

"There is no doubt that a great deal of the so-called training of the Territorial Force during the summer camp is carried out on the principle of trying to teach an infant to run before it can walk. If the bulk of the Territorials were out in camp for several weeks it would no doubt be desirable that a short period of the training should be devoted to maneuvers on a fairly large scale. It is manifestly absurd, however, to launch units which are only out for a week or a fortnight into complicated tactical schemes when a large portion of the infantry have not acquired throughout the year a decent knowledge of company and battalion drill. Marching large bodies of Territorials along roads and across country teaches the untrained soldier next to nothing. Anything like cohesion is impossible, and where extensions are limited to even a few yards between files in a very short time chaos and confusion must result. We believe ourselves that there is too much theory and too much lecturing in the Territorial course of instruction throughout the year, to the detriment of more simple essentials.

"The men are not well grounded in simple company and battalion movements; indeed, the latter take place only at rare intervals, especially when companies are located in small towns several miles apart. If it is impossible for the Territorials to receive a sufficient amount of tactical instruction throughout the year, it might at any rate be expected that the units should be fairly proficient in 'barrack-square' drill."





## Editor's Table.

### CAVALRY TRAINING.

In the July, 1910, number of the *Infantry Journal* there appeared an article under the above title which, to again quote from our esteemed contemporary, the *Journal of the Military Service Institution*, "*has strayed from the cavalry corral.*"

The article is a reprint of a letter from Arthur Conan Doyle that appeared in the *Pall Mall Gazette* of April 6, 1910, and which is evidently in reply to another letter from a correspondent of that periodical, criticising Mr. Erskine Childers' recent book entitled "*War and the Arme Blanche.*"\*

Mr. Doyle concurs with Mr. Childers in his opinion that the days of the cavalry charge have passed never to return and states that, in the first edition of his book, "*The Great Boer War,*" he had asserted "that there was, outside of artillery, only one weapon in the world, the magazine rifle, and that the only place for swords, lances and revolvers was a museum."

The following are additional quotations from this article:

"I said, also, that good mounted riflemen must always dominate cavalry, and I gave my opinion that the whole cavalry force with its splendid personnel should at once be rescued from impotence by being rearmed and put on a level with their foes.

"This was the practical lesson shot into us on the veldt, a land which, when compared to any European country, is a perfect terrain for cavalry. What has occurred since then to alter it? I claim that everything has been in the direction of enforce-

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\*See article on this subject and a review of this book on page 341 of this number of the CAVALRY JOURNAL.

ing the lesson. The '*arme blanche*' can never improve, but the riflemen has been reinforced by quicker fire and lower trajectory. If he dominated in South Africa, he has increased his superiority since. And yet our cavalry, while, it is true, retaining their rifles, have gone back to the sword and the lance, with those prehistoric shock traditions which these implements imply. It is indeed a sad thing that we should put aside our dearly won experience and follow German theorists who have never seen a shot fired in anger.

"Your correspondent follows the cavalry manual in the opinion that a soldier must be trained to be equally expert with sword, lance and rifle. But the tactics of the shock horseman and of the mounted rifleman are absolutely contradictory and it is not possible to train a habit of mind to take two irreconcilable shapes. The shock horseman is always looking for bad ground and some one to charge. The mounted rifleman is looking for bad ground where he and his horse can both be concealed, with a good fire field. You can have it either way, but you cannot have it both. Which is the better way for extracting the most value from the soldier has surely been shown by all modern warfare, but most of all by the American civil war and the African war, where men of our own blood faced with the practical conditions of a long campaign, evolved in each case the same form of mounted soldier. In the past we would have been wiser to study the methods of Americans like Sheridan and Stewart (*sic*) than those of the Continental cavalry. Now that our African lessons have reinforced those of America, it would indeed be sad if the traditional conservatism of our cavalry were permitted to overlook them.

"The cavalry prejudice is continually evident in your correspondent's remarks. For example, he talks about 'lowering the cavalry to the level of mounted infantry.' But why lowering? The object is to produce the most formidable soldier. If, as South Africa showed, the mounted rifleman is so, then it is not to lower but to raise the cavalry when they are converted to that type.

"Your correspondent's chief argument is the old one that cavalry can charge and that mounted infantry cannot. Both propositions may be disputed. Neither in the Boer war nor in

that of Manchuria has the cavalry ever shown that they could charge under modern conditions. On the other hand, mounted infantry have charged in the Boer service again and again, and, indeed, the charge on horseback was their normal method of attack during the last year of the war. Your correspondent mentions Potgieter's charge which was arrested. But he does not mention the Boer charges of Vlaktefontein, Tweebusch or Bakenlaagte which got home with deadly effects. The mounted rifleman's charge does not depend upon shock, but it is none the less deadly, arresting itself at the last moment for the use of the rifle. Botha at Bakenlaagte stopped his horsemen only thirty yards from the British line, but under a fold of ground, with the result that our force was annihilated. What could sword or lance do more? And is it fair to say that if cavalry become mounted riflemen they can never hope to charge? I believe the reverse is the fact and that it is not until they have become mounted riflemen that they will ever be able to play a spirited role in modern warfare."

While it is true that there are many cavalry officers in our service who believe that, with our short term of service of three years and the many distractions in the way of practice marches, maneuver camps, tournaments and the altogether too much time spent on the rifle range, not sufficient time is found for the proper training of our cavalymen in the use of his four arms, the rifle, saber, revolver and horse—yet there are few or none who believe that our cavalry should be converted into mounted infantry, pure and simple, by discarding the saber and revolver.

It is also true that some of our cavalry officers, in view of the above mentioned lack of time and other reasons, are in favor of doing away with either the saber or revolver, but not both. As to which of these two weapons should be relegated to the scrap heap they are not agreed, and it resolves itself down to the *old, old* question of the saber vs. the pistol.

Others, and it is thought the majority, of our cavalry officers are decidedly of the opinion that, if many of the useless or overdone functions or exercises which now occupy the larger part of each year were eliminated, the problem of finding enough time would be solved. They think, as do, also, many officers in the other branches of the service, that entirely too much time

is wasted on the rifle range, that practice marches could be largely cut down or entirely done away with, and that the *side-show*, or *whole-show*, business, at county fairs or city tournaments, should be cut out entirely. If this could be done and the soldier could be relieved of the other details that should be performed by a service corps, time could then be found to make our cavalymen efficient even as now armed.

Regarding the remarks of Mr. Doyle as to the experiences gained from the Boer war, the comments of General Bernhardt, in his discussion of Mr. Childers' views, as given in a recent number of the *Militar-Wochenblatt*, and which we quote from a recent number of the *Army and Navy Gazette*: "He remarks in his opening article that Mr. Childers' book bears the impress of a want of experience in conduct of war, and a practical understanding of the questions of peace training and the possibilities of war. The General does not, however, diminish the value of the book as a capable and reasoned statement of the case, but he chiefly attaches importance to it because it has received the approval of Lord Roberts, 'the first soldier in England,' while it is opposed to the views of Sir John French, the 'cavalry leader *par excellence* of the South African war.' The German General finds some difficulty in understanding Mr. Childers' distinction between the 'shock' and the 'charge.' He thinks it unwise for us to regard the war in South Africa as a lesson in the whole art of war and protests that the 'cavalry duel' will be a feature of future wars. He does not deny the necessity of a firearm, nor attempt to explain away all that has been said by Mr. Childers against the '*arme blanche*.' He says, indeed, that the question is one of great importance to German soldiers, who have to decide how far it is possible to go with the firearm and what is the true role of sword or lance, but he holds that it would be a great error to deduce all experience merely from the events in South Africa."

Also, regarding the experiences gained from our civil war, Mr. Doyle has not studied the history of that war carefully if he failed to find numerous instances in which the saber and revolver were effectively used. It is also doubtful if he could have found any of the veteran cavalymen of that war who, at its close, would agree with him that these weapons should be con-

signed to a museum. The writer joined one of these veteran cavalry regiments, whose record was second to none in the Army of the Potomac, during the last year of the war, and he never heard then, nor has he ever heard since among his associates in that war, any talk or hint but that the saber and pistol were valuable adjuncts to their armament, although the regiment was armed with repeating carbines.

A book, now in press,\* gives many interesting accounts of cavalry charges during that war where the saber and revolver were effectively used.

This question of the armament of our cavalry and consequently of cavalry training is an important one and it is to be regretted that the Cavalry Equipment Board, now in session, has not been authorized to take up this subject as well as the other questions before it. In fact, it is hard to conceive how this board can properly devise an equipment for our cavalry entirely without going into the question of the rifle vs. a carbine and how they are to be carried as well as that of the saber and revolver.

P. F.

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#### THE CAVALRY EQUIPMENT BOARD.

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As has been stated heretofore in the CAVALRY JOURNAL, no action of such vast importance to the cavalry branch of the service has been taken in over a quarter of a century as is that of detailing the Cavalry Equipment Board now in session at the Rock Island Arsenal.

Their field of work is so broad and so much depends upon the results of their deliberations that the final outcome will be looked for with great interest by every progressive cavalry officer.

This Board has asked for and is entitled to the assistance of all concerned by submitting suggestions on the various points involved, principally as to defects in the present cavalry

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\*"Cavalry Tactics as Illustrated by the Civil War," by Captain Alonzo Gray, 14th Cavalry. Published by the U. S. Cavalry Association.

**DRINK**



**FALSTAFF**

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**BOTTLED BEER.**

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equipment but more particularly as to schemes or ideas regarding its betterment. It therefore behooves our thinking cavalry officers to bear this in mind and in every way possible help this Board in its efforts.

Attention is asked to the note on this subject on page 365 of this number of the JOURNAL.

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#### A COMPLAINT.

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In the July, 1910, number of the CAVALRY JOURNAL, there appeared two articles, reprinted from the *United Service Magazine*, under the titles of "On Writing Military History" and "Stonewall' Jackson: Some Current Criticisms," which have brought forth a complaint from Major G. W. Redway, of the British Army, who is the author of a recent work entitled, "The War of Secession."

This is, in part, as follows:

"London, August 2.

"Dear Sir:

"Your July number contains two articles reprinted from the *United Service Magazine* (London). Both articles are in effect criticisms of my book on the 'War of Secession' which has been favorably noticed in America.

"I specially requested my publisher to send you a copy of the book for review when it was published last March.

"I was hoping to see an expert opinion of the book in your JOURNAL and was surprised to find instead the reprint of two articles written by people who are by no means well acquainted with the subject.

"Yours truly,

"G. W. REDWAY, Major."

The copy of his work mentioned by Major Redway as having been ordered sent us for review was never received and it has never been seen by the Editor. However, complimentary notices of this work have appeared in other United States military journals which have been read with interest.

The two articles in question were reprinted, not because they were criticisms of any particular book or articles, but on account of their being discussions of two important campaigns of our Civil War in which our readers are or should be interested.

In fact, it was not noticed, nor does a second reading of the articles in question show that they were criticisms of Major Redway's book but rather of two articles that had previously appeared in the *United Service Magazine*.

Of course, it was not the intention to do Major Redway or any one an injustice in reprinting these articles and when the promised copy of his book is received, a careful and extended review of the same will appear in the CAVALRY JOURNAL.

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#### BOY SCOUTS.

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The "Boy Scout" movement which was inaugurated in England about two years ago by Lieutenant General Sir Baden-Powell has made wonderful strides not only in that country but has taken root in nearly every British colony and in many other countries as well.

In the United States many of these "Boy Scout" organizations have already been instituted and a national headquarters has been established in New York City for the purpose of encouraging the formation of others in every city and town throughout the country and to have eventually state organizations somewhat on the lines of those abroad.

The object of this movement, as stated in their circulars urging the formation of these organizations, is to "inculcate the military spirit in our youth for the purpose of disciplining the boy with a view of making him a more competent man."

The character of this movement is more fully set forth in the following extracts taken from the "Army Annual" for 1910:

"Although the founder of the 'Boy Scouts' has more than once announced that the movement is in no sense of a military

nature, there can be no doubt that the lessons of duty and discipline inculcated in youth will be of the greatest value in later life, should any national emergency arise.

"There is no military meaning attached to the name scouting. Peace scouting comprises the attributes of colonial frontiersmen in the way of resourcefulness and self-reliance and the many other qualities which make them men among men. There is no intention of making the lads into soldiers or teaching them blood-thirstiness. But under patriotism they will be taught that a citizen must be prepared to take his share among his fellows in the defence of the homeland against aggression in return for the safety and freedom enjoyed by him as an inhabitant. He who leaves his duties to others to do is neither playing a plucky part nor a fair part.

"Patriotism means love for one's country and one object of the 'Boy Scout' movement is from early years to instill this virtue in the youth of this great Empire and thus cause its spread throughout the dominions under the sway of our King-Emperor.

"It is a method of developing among boys the manliness and character which are so much needed among our future citizens. It consists, briefly, in giving them scout-craft in place of loafing or rowdiness which are now becoming so prevalent. To drive out a bad habit it is necessary to inculcate a substitute and scout-craft is the substitute we suggest. By scout-craft is meant an education in character outside the school walls, as distinct from mere book-learning learnt within the school.

"Scout-craft includes the attributes of our best colonial frontiersmen, such as resourcefulness, discipline, self-reliance, unselfishness, physical activity and development, chivalry, loyalty and patriotism. These and kindred qualities are taught entirely by practices and games such as really attract and hold the boys; that is, they are taught through the medium of camp life—with its details of pioneering, hut building, felling trees, fire lighting and cooking, etc.—by campaigning or life in the open, finding the way in strange countries, boat-cruising, map-reading, judging heights and distances; conveying messages by signals and signalling; observation of animals and all details of every kind, of tracking and stalking, knowledge of plants and trees

and astronomy; health and endurance, including sobriety, non-smoking, continence and the general preservation of health and the development of body.

"Chivalry is taught by the example of knights, including helpfulness to others, courtesy to women, self-discipline, courage, honor and cheerfulness.

"The whole scheme and the methods of carrying it out are described in the handbook 'Scouting for Boys'\* and further instructions are given weekly in the Scout newspaper which now has a circulation of over 100,000."

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#### ALUMNI ASSOCIATION OF THE FORT LEAVENWORTH SERVICE SCHOOLS.

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In June last, at a meeting of many of the graduates of the Service Schools at Fort Leavenworth, an alumni association of such graduates was instituted.

A Constitution was adopted which gives the objects of the association to be: First, to increase the military efficiency of its members by affording opportunity for the interchange of professional knowledge and ideas. Second, to perpetuate and foster the Fort Leavenworth spirit among its members by professional and social intercourse.

All officers of the Army who are graduates of these schools, as well as all officers of the Army who have been instructors at the schools, are eligible for active membership in the association, upon assenting to the Constitution and By-Laws. Associate members include all former officers of the Army who have been either instructors or are graduates of the schools. The honorary members include all who are or have been commandants or assistant commandants of the schools.

The following were elected officers of the association for the year 1910-11: President, Major General J. Franklin Bell; Vice-President, Major J. F. Morrison; Secretary and Treasurer

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\*"SCOUTING FOR BOYS." By Lieutenant General Sir R. S. S. Baden-Powell, K. C. B., published by C. Arthur Pearson, Henrietta Street, London. Price, 1s.

(ex-officio), Captain A. E. Saxton; Executive Council, Lieut. Colonel W. A. Nicols, Major W. P. Burnham, Captain J. W. McAndrews, Captain O. L. Spaulding and Captain LeR. Eltinge.

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### SONGS OF THE SERVICE.

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A communication has been received from Captain Selwyn E. Hampton requesting an announcement that he is attempting to compile a volume of "Songs of the Service." These are to include only such songs as are known by and are of interest to a considerable part of the army. Those intended only for special occasions or that endure but for a day cannot be included. In case any regiment has any song claimed as its own or of any lasting interest, he would be pleased to receive a copy of the words and, if practicable, of the music also. In such cases he desires that the name of the author be given if known.

Captain Hampton's address is at present: Fort Bayard, New Mexico.

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### SUBSCRIPTION AGENCY.

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Since the Cavalry Association instituted its Book Department some two years ago, we have had frequent requests for prices on subscriptions to periodicals, particularly for troop libraries, and have received quite a few orders to place subscriptions for members when they were ordering books or remitting for dues, etc.

For the accommodation of our members and subscribers, especially for those stationed abroad, we have recently arranged with one of the leading and largest subscription agencies in this country for handling all such orders and are now prepared to quote prices on all foreign and domestic

periodicals. We guarantee as low rates as those given by any reputable agency.

Particular attention will be given to subscriptions to foreign military journals and the lowest possible terms will be procured.

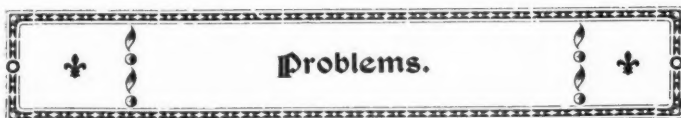
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#### BACK NUMBERS.

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The Cavalry Association has on hand a full supply of back numbers, with the exception of No 47, of the CAVALRY JOURNAL and can furnish copies to such of our members as may require extra numbers to complete their files. These will be furnished without charge to those who have been persistent members when desired for this purpose. Complete sets of the CAVALRY JOURNAL can be furnished, bound or unbound as desired.

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### NON-COMMISSIONED OFFICERS' PROBLEM No. 3.

The Editor:

Seven solutions of this problem were received. All were considered of a high order of merit, but in three of them a misconception of the words "the spur just north of U. S. Pen." in 2 (a) of the problem affected their solutions, probably causing their distances to be too short for cavalry in such open country.

In four solutions, the support was halted on the crest of Long Ridge in the solution of 3 (b), the question of cover not being apparently considered.

In all solutions to 3 (c), well worded messages were sent but in five of the solutions they were verbal. It is believed that, in view of the importance of the information to be transmitted, the short loss of time required to write the message would be more than compensated for by the certainty of the information being accurately delivered. The message is considered too long for verbal transmission by messenger.

In one solution, through faulty map reading, the support was placed in the railroad cut at XXVII, dismounted for fire action against "both Prison Lane and the road from U. S. Pen. to Atchison Cross." The steepspur to the south of the cut in question, however, shuts off nearly all view of the roads. The field of fire from there would be consequently extremely limited.

In another solution, the support, on reaching the crest of Long Ridge, consisted of but one man, with four other men

coming in from patrol duty on the flanks—if nothing has happened to prevent their arrival.

The solutions considered the best were those of "James," "Watson" and "X Y Z," in the order named, the first being the one selected as the prize winner and for publication.

In the solution by "James," it is believed that the Corporal and two men might well be enough for the advance party of such a small advance guard. The remarks above as to a verbal message apply to this solution.

COMMITTEE.

In accordance with the above report, the prize for the best solution of Non-Commissioned Officers' Problem No. 3 is awarded to Lance Corporal Prentice Strong, Troop III, Squadron "A," N. G., N. Y.

The solution signed "Watson," noted above, was submitted by First Sergeant Alfred W. Booraem, Troop III, Squadron "A," N. G., N. Y., and that signed "X Y Z" was submitted by Sergeant Isham Henderson, Troop III, Squadron "A," N. G., N. Y.

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SOLUTION.

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1. Nothing more has been heard of the enemy. Our troop is going to Prison Hill via Prison Lane. We are the advance guard of the troop. Numbers 1, 2 and 3 of the first four will form the advance party under Corporal James who will be my second in command. Number four will act as link. The advance will keep not more than 500 yards ahead of the support and will keep in close touch with the latter at all times. It will take its distance at the gallop and after that will regulate its pace on that of the support. There will be no flankers. I will send men to make any necessary observations on the flanks. I will be with the support.

2. "A" Point, one man on ridge of spur, 400 yards north of U. S. Pen. Advance party, Corporal and two men at bridge,

Corral Creek and Prison Lane, south of Railroad Crossing. Link one man at Railroad Crossing. Support four men top of Long Ridge. Temporary flanking patrols, two men at railroad bridge at XXVII and two men on Corral Creek, 400 yards due east of Prison-Lane-Corral-Creek bridge.

"B." I will be with the advance party, temporarily, in order to take charge of the reconnaissance of the U. S. Pen.

"C." 200 yards south of 8.

3 "A." I judge that this is the advance guard of a detachment of the enemy, probably of a regiment.

"B." I halt my men under cover of Long Ridge, send a report to the troop commander, look over the country on all sides and await instructions.

"C." Am at Long Ridge. Can see about 100 Infantry in advance guard formation moving from Metropolitan Avenue and 9th Street toward U. S. Pen. Dust is rising on Metropolitan Avenue behind them. Have halted and await your instructions.

Owing to the necessity for haste I would send the above message verbally by a messenger.

4 "A." When the troop has passed XXIII I will send Corporal James with eight men, as rear guard support, west along the Creek, north of Long Ridge with instructions to keep in touch with the troop and to follow them at an interval of not over 600 yards. I will keep four men with me on Long Ridge and will take the lower 74-XXIV road, starting when Corporal James and his men reach the XXIII-XXIV road. I will stop on the top of the hill north of XXVII for a moment for an observation.

"B." None. These men are all with me.

5. I continue to follow the troop. My orders are to act as rear guard. I am not instructed to engage an enemy in our rear who cannot follow us, nor am I in charge of the reconnaissance.

Respectfully submitted,

JAMES.

August 8th, 1910.

## NON-COMMISSIONED OFFICERS' PROBLEM NO. 4.

Owing to the absence at the various maneuver camps of such of the members of our Executive Council as are familiar with the preparation of problems and who have heretofore been charged with that duty, it has been found impossible to procure a problem, under the above title, for publication in this number of the JOURNAL without delaying the issue much beyond the usual date.





**Night Operations  
for  
Infantry.\***

A little book of 64 pages which, according to the advertisement, "is principally designed for the use of company officers."

The author first deals with the importance of training troops for night operations. While he neither advocates nor deprecates night attacks, he believes that if one side does not make them the other probably will and that there is, therefore, necessity for training for night work.

The author suggests a course of training for the individual soldier and for an infantry company. This course is, on the whole, good.

The general principles that should govern night work of this kind are well brought out.

The following quotation, while sound advice if engaging in night fights, it seems to me is a good reason for keeping out of them if practicable:

"Every infantryman must be imbued with the idea that at night the bayonet is the only weapon which he can trust, and that the more promptly he uses it the better his chance of success will be. In the dark every advantage lies with the side that

\*"NIGHT OPERATIONS FOR INFANTRY." By Colonel C. T. Dawkins, C. M. G., A. Q. M. G., Eastern Command. Gale and Polden, London, 1910. Price, 1s/6d.

takes the initiative; numbers are of little account, for a resolute bayonet charge delivered by even a single picket, may, if it comes unexpectedly, demoralize and throw into disorder a strong attacking column."

While there is little that is new in the book, it is well arranged and well expressed. The time required to carefully read it will be well spent. M.

**Cavalry  
in  
War and Peace.\***

It was announced in the last number of the CAVALRY JOURNAL that the English translation of this new book by that celebrated writer on Cavalry, General V. Bernhardt, was in press and that an extended review of the same would appear in this number. Unfortunately the promised review has not yet been received, nor are the books ready for sale. However, it is expected that they will be received from the printer within the next month, when the advance orders will be filled as rapidly as possible.

The following extracts from a review of this work that recently appeared in the *United Service Magazine* will give an idea as to its scope:

"A study of this book leaves a reviewer in something of a difficulty. Considerations of space forbid so important a work being noticed at the length and in such detail as it deserves, while it would be hopeless to attempt to note even in brief all the points, worthy of study by British officers of all arms, which it contains in such abundance. At the outset the reviewer may perhaps mention that he had the advantage of reading the original work, 'Reiterdienst,' when first published in January last, and he would desire to heartily congratulate Major Bridges on his wholly admirable translation. It is probable that a great many people may in the first place be desirous of knowing how the book affects the question of cav-

\*"CAVALRY IN PEACE AND WAR." By General V. Bernhardt. Translated from the German by Major G. T. M. Bridges, Fourth Dragoon Guards, with a Preface by General Sir John French, G. C. B., G. C. V. O. U. S. Cavalry Association, Fort Leavenworth, Kansas. Price, postpaid, \$2.25.



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alry armament and employment, in regard to which we have recently had an expression of somewhat revolutionary views, supported by a certain measure of expert military opinion. But those who expect to hear something on the other side will not find anything very startling in the book itself—nothing even so pronounced as may be discerned in the preface contributed by Sir John French, who, like his protagonist, Mr. Childers, is equally able to produce a field marshal in support of his more orthodox opinions.

\* \* \* \* \*

"General von Bernhardi is very careful in many places and with reference to differing circumstances, to warn cavalymen of the danger of blindly drawing lessons from peace maneuvers, whereat he contends, and many will agree with him, that the conditions are often unreal and the resulting efforts misdirected. Particular attention should be paid to what the General has to say on the subject of reconnaissance by the army, or independent, cavalry, the organization and duties of the reconnoitering squadrons and distant patrols, and of the increased tactical value of the divisional cavalry.

"General Bernhardi is not in agreement with his own regulations in regard to 'Raids,' which are therein rather discouraged as tending to distract the cavalry from its true battle objectives; the author, however, holds that the disturbance of an enemy's rear communications by Stuart-like raids may often do an opponent more damage and contribute more to a favorable decision than the intervention of a few cavalry divisions in the decisive battle itself.

"Bernhardi is far in advance of his own leaders of cavalry opinion in the importance he ascribes to a combination of the different methods of fighting even in the battle action of cavalry; he would have cavalry fight dismounted in the offensive, not only on the defensive, merely stipulating that such an attack should only be entered upon when it is clear that the results justify the loss, not only in *lives* but also in *time*, which must both be regarded as lost in estimating the further operative value of the mounted force. He would give the cavalrman the best of firearms, yet leave him his sword which, indeed, he seems to rate far higher than the lance; he sees no object in

arming the cavalry soldier with the bayonet, since the hand-to-hand fight on foot must be most exceptional. But perhaps this brief review may best be concluded by quoting the following words which give an altogether just view of the author's opinions as to the employment of the arm of which he is so distinguished an ornament: 'It is not a question as to whether we cavalymen are to fight mounted or dismounted; but that we must be prepared and determined to take part in the decision, and to employ the whole of our great strength and mobility to this end.' "

**The  
Trumpeter's  
Manual.\***

This is a book of 135 pages (5¼x6½ inches), which is designed for the instruction of Trumpeters and Buglers in the Military and Naval Forces of the United States. It covers the subjects of Rudiments of Trumpet Music; Trumpet Exercises; Instructions for Trumpeters; Drill Signals; Instructions for Field Musicians; Instructions for Bands; Ceremonies; Honors Rendered by Trumpet; Braiding Trumpet Cords; History of the Trumpet; Table of Trumpet Calls, and finally the trumpet calls, set to music, for the Army and Navy, consisting of the calls and signals proper and marches, quick-steps and flourishes.

Judging from the numerous and flattering testimonials that the author of this book has received from Chief Musicians of the Army and Bandmasters of the Navy as to the merits of this work, it would appear that it would be a valuable aid to our trumpeters of cavalry.

F.

**Field Gunners'  
Catechism.†**

A booklet of fifty-eight pages (4x5 inches), with linen cover, which is designed for the instruction of gunners in the field Artillery in the British Army. It is arranged in the form of

\*"THE TRUMPETER'S MANUAL." By Nathan C. Lombard, Chief Trumpeter, C. A. C., M. V. M. The Lombard Co., Boston. Price, \$1.50.

†"THE FIELD GUNNER'S CATECHISM." By Major A. T. Anderson, Royal Field Artillery. Gale and Polden, Ltd., London and Aldershot, 1909. Price, 1s/6d.

questions and answers and covers the following sub-heads: Gunnery; Cordite; Gun and Carriage, 18 Pd'r, Q. F.; Ammunition, etc.; Knotting, Tackles, etc.; Care of Horses; Drill; Guard Duty—N. C. O.'s and Miscellaneous.

While there is much of this book that relates entirely to the particular gun used by the Field Artillery of the British Army, yet there is a great deal that is general and which applies to field artillery of any service, such, for instance, as the subjects of the care of horses, etc.

This is a second edition of this work, corrected and brought up to date. P.

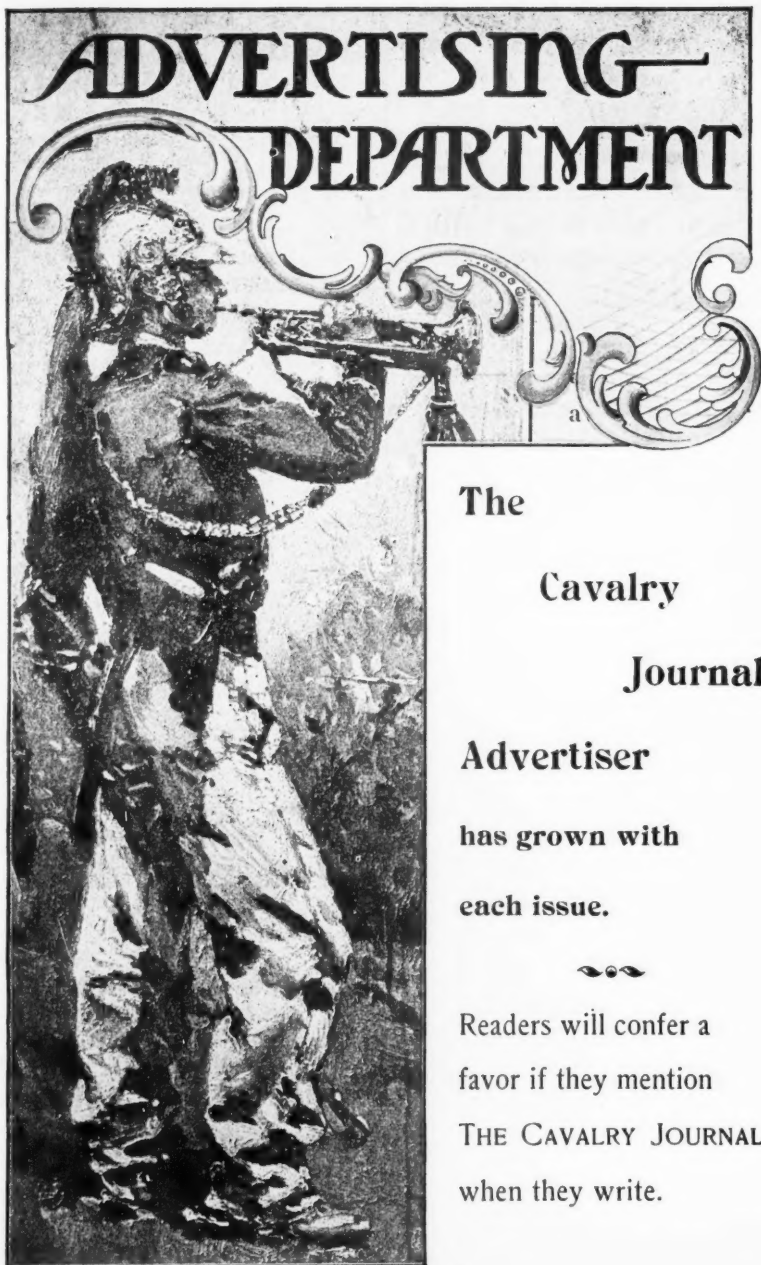
### **Free Gymnastics.\***

This is one of the numerous manuals issued by Gale and Polden, Ltd., of London and Aldershot, on athletic training and physical development. It is a small book of 67 pages, bound in paper ( $4\frac{1}{2} \times 7$  inches), which is fully and well illustrated.

The first 43 pages are devoted to the subject "Free Gymnastics" and the remainder to dumb-bell exercises. It is based on the Swedish system as practised at the Army Gymnasium at Aldershot and is by the Sergeant Major in charge of that gymnasium. Of the book, Colonel John Scott Napier, Inspector of Gymnasiums, says: "I have gone through this little book very carefully and have much pleasure in stating that in my opinion it is the best Manual on Free Gymnastics I have seen. The illustrations are from life and accurately show the correct positions of the body in each exercise. I can strongly recommend the work to any one interested in physical culture."

\*"A SYSTEM OF FREE GYMNASICS BASED ON THE SWEDISH SYSTEM, INCLUDING DUMB-BELL DRILL." By Sergeant Major J. B. Betts, Army Gymnastic Staff. Gale and Polden, Ltd., London and Aldershot. 1909. Price, 1s/6d.





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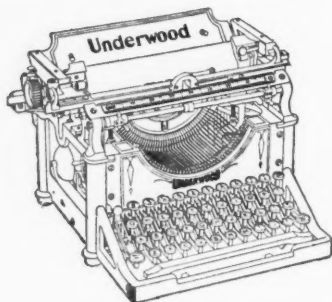
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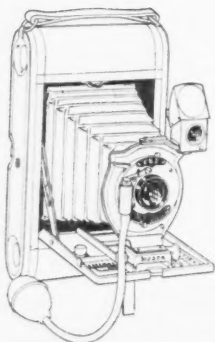
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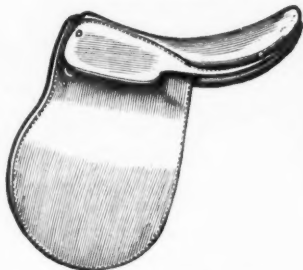
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